LAND USE PLAN

SOUTHPORT, N. C.

Coastal Area Management Act of 1974

May 5, 1976

Prepared For:

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Abstract:

Land Use Plan prepared in accordance with CAMA of 1974.

Technical Assistance Provided By:

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Division of Community Assistance
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LAND USE PLAN

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Introduction

Why have a Land Use Plan for Southport?

"In recent years the coastal area has been subjected to increasing pressures which are the result of the often conflicting needs of a society expanding in industrial development, in population, and in the recreational aspirations of its citizens," according to the Coastal Area Management Act. It goes on to say that "unless these pressures are controlled by coordinated management, the very features of the coast which make it economically, esthetically, and ecologically rich will be destroyed.

In adopting the Coastal Area Management Act for 1974, the N.C. General Assembly empowered local governments in 20 N.C. coastal counties to exercise control over their future. Communities along the coast are now blueprinting the best use of their valued resources--whether it's their estuary and marshland waters, which serve as a nursery for as much as 90 percent of the best sport fisheries in the East; or their beaches, which serve as recreational havens for those employed in the ever-expanding urban centers.

Designed to be a cooperative program, local governments are authorized to initiate planning for their local values, and State government to define those areas valued for more general use. In addition to granting some financial support for local planning, the State is to provide guidelines and assistance necessary to enforce the plans adopted by a particular community.

Public participation in developing the Land Use Plan has been enlisted

by: 1) public meetings held by the Planning Board; 2) two surveys: one mailed to 1000 water and sewer customers; the other, a sampling from all neighborhoods conducted by high school students; 3) numerous informal discussions with citizens regarding their interests; 4) meeting with local civic groups; 5) coverage by local weekly newspaper.

The scope of the Land Use Plan is outlined in the table of contents. It benefits greatly from the "State Guidelines for Local Planning. . .," adopted by the Coastal Resources Commission in January, 1975, and amended that October. The local plan includes a summary of data collected and its analysis; maps of existing land use, types of soil, and Areas of Environmental Concern; and a section on how the land use objectives, policies, and standards for Southport can be implemented.

Following its presentation to the Planning Board and the Board of Aldermen last November, the Plan was forwarded to the Coastal Resources Commission for comments and suggestions. In addition, some two dozen State and Federal agencies have added observations from their particular frame of reference and expertise.

Article II - Present Conditions*

Section 1: Population and Economy

The population of Southport, as well as that of Brunswick County has witnessed a period of startling growth. The establishment of two large industrial plants near the city has been accompanied by a major influx of workers which has added significantly to the total population. The 1970 United States Census (the last official enumeration) placed the total count of persons in Southport at 2220, and that of Brunswick County at 24,223. These figures represent increases from the 1960 Census of 9.1% and 19.4% respectively. With due regard to the 1970 statistics, however, it is a generally recognized fact that a great deal of change has occurred within the last few years which would probably render 1970 data particularly deceptive. The North Carolina Office of State Planning, for example, estimates the population of Southport as of July 1, 1974, to be 2,900 persons, while other unofficial estimates have reached as high as 3,200. The vast majority of this upsurge is most likely an outgrowth of industrial expansion, particularly the Carolina Power and Light Company nuclear power generating station located just outside of town. This industry has employed a large quantity of construction workers during the early part of the seventies, and will continue to provide jobs for a large number of workers on a permanent basis. Smithville Township, where the plant itself is located, registered a gain of 29.5% (about 1,000 persons) during the decase, indicating that some people are taking up residence near the plant, but outside of the city limits per se.

Migration rates which have been caluclated for Brunswick County reflect the assumption that more and more of the County's people are staying in the county rather than moving out. A study done in 1969, for example, compared specific age groups in 1950 with the same groups a decade later in order to measure the percentage of persons who had remained within the county during that period (e.g. ages 25-34 in 1950 compared with ages 35-44 in 1960). In every case Brunswick had shown a loss of residents, that is, less than 100% remained ten years later. From 1960 to 1970, the

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*North Carolina Department of Natural and Economic Resources, Division of Community Assistance Community Profile, Southport, N. C., David Long January 1975.

situation was altered significantly: most age groups exhibited net gains (over 100%) during this span, and in each instance, the percentage of persons continuing to reside in the county was larger than that experienced during the previous enumeration. Although age breakdowns are unavailable for 1975, the reportedly substantial additions to the total population would lend support to the notion that currently, an even higher proportion of each age group is being retained. These statistics tend to indicate that Brunswick County is becoming an increasingly attractive area in which to live and work.

The median age of a population, that is, the point at which half of the people are older and half are younger, gives a description of the age composition of a given population. The forces which normally act on the median age are births, deaths, and migration, and the complex interplay of these forces can drive the age either up or down. There is presently a nationwide trend toward lower birth rates, and this has caused the median age to rise slightly, since young people become a lesser proportion of the total. From 1960 to 1970, each segment under study (male, female, black, white) grew older. The median age for all groups in Brunswick County was 26.4 in 1970 as opposed to 23.9 in 1960. Southport in 1970 stood at 32.2 and Smithville Township registered 32.4, while the North Carolina figure was 26.5. The reason for this appears to be that Southport contains a relatively large sector of elderly people (those over 65) within its boundaries. North Carolina, for example, listed 34.6% of its people less than age 18 and Southport compared closely with 32.2%. In the over 65 category, however, Southport contrasted significantly with 12.9% versus the state average of 8.1% . . . nearly one and one half times as many. This situation could have possibly changed since the last Census, but from these figures, it would appear that Southport is a favorable environment for the elderly, perhaps the retiree, and should

take this into account when formulating policies and programs in the future.

POPULATION CHANGE 1930-1970

	Brunswick	Smithville Twp	Southport
1930	15,818	2912	1760
1940	17,125 (+8.3%)	2936 (+0.8%)	1760 (0.0%)
1950	19.238 (+12.3%)	2873 (-2.2%)	1748 (0.7%)
1960	20,278 (+5.4%)	3355 (+16.8%)	2034 (16.4%)
1970	24,223 (+19.5%)	4346 (+29.5%)	2220 (+9.1%)

Source: U.S. Census, 1970

SURROUNDING CITIES: POPULATION CHANGE 1960 -70

	1960	1970	% Change
Southport	2034	2220	+9.1
Wilmington	44013	46169	+4.9
Burgaw	1750	1744	-0.3
Whiteville	4683	4195	-10.4

Source: U. S. Census, 1970

MIGRATION RATES: BRUNSWICK CO. 1950-60, 1960-70

	0-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54
Age Groups in 1960	2441	2469	2417	1928	1125	2298	2509	2155
Same Group in 1970	2653	2320	1840	1542	1326	2634	2677	2320
Percent Remaining	109%	94	76	80	118	115	107	108
Percent Remaining 1950-60	96%	81	54	61	81	94	92	88

Source: Southport Population & Economy Study 1969 and Calculated from Census, 1970

POPULATION CHARACTERISTICS: 1970

	Total	Male	Female	White	Black	Under 18	Over 65	Med. Age
Brunswick	24,223	50%	50%	69%	30%	37.4%	8.4%	26.4
Smithville Twp.	4,346	49%	51%	72%	26%	32.4%	12.1%	32.4
Southport	2,220	47%	53%	62%	35%	32.7%	12.9%	32.4
North Carolina	5,082,059	49%	51%	77%	22%	34.6%	8.1%	26.5

Source: U.S. Census, 1970

MEDIAN AGE: BRUNSWICK CO. 1940 - 1970

	White Male	White Female	Black Male	Black Female
1940	22.3	21.5	20.1	20.2
1950	25.1	24.4	19.2	19.9
1960	27.8	28.0	17.4	18.2
1970	28.8	29.7	18.9	20.8

Source: U.S. Census, 1970

An accurate appraisal of Southport's economy would be especially difficult to gauge at the time of this report. The latest Census figures are probably outdated, and the economic picture as of January, 1975, is hopefully not representative of the first half of the seventies as a unit. Certain valuable information may be extracted from existing economic data, however, and should merit close attention.

A delineation of occupations by class of industry reveals two basic differences between Brunswick County and the State. Based on employment in 1969, the percentage of workers engaged in construction is more than twice the state average for the same category. . . 14.7% compared to 6.7%. This gain is offset by a proportionately small segment of the labor force employed within the manufacturing sector. Brunswick registers approximately one fourth of its workers in this category while the state total is greater than one third (Brunswick 25.9%, North Carolina 35.4%). According to the North Carolina Employment Security Commission's Annual Average Labor Force Estimates 1970-73, this trend seems to be leveling off somewhat. Construction labor reached a peak in 1972 and fell in 1973 and 1974, while manufacturing as a rule has been steadily increasing. In the remaining categories, Brunswick very closely parallels state averages.

Figures for the rate of unemployment are reproduced in the statistical section of this report on two different bases. The first, 1970-73 estimates, indicates that Brunswick should be lowering its rate of unemployment. Due to the instability of the national economy at this time, however, these implications should not be relied upon too heavily. In order to analyze the current situation, a second table is included listing unemployment for the period July - November, 1974. Of the six counties shown, Brunswick is the highest in unemployment with 10.1% of its labor force jobless as of November. The North Carolina rate as of December '74 was 8.1%. Local observers

of the economy tend to believe that much of Brunswick's unemployment is related to closings and layoffs of several small businesses located primarily in the southern section of the County. Unemployment in Southport itself is currently being attributed to the stagnant condition of the small-scale construction industry and also the fishing industry. These businesses are seasonable and usually decline during the winter months, but they have been especially hard-hit recently. Long-term contractural work, such as the Carolina Power and Light and Pfizer Company construction projects, are believed to have exerted a stabilizing force on the local economy in the sense that they have continued to maintain their operations with few layoffs while similar smaller concerns have been faltering.

Characteristics of income include median family income, per capita income, and those persons/families below the poverty level. The median family income for Brunswick County as of 1970 was $6,409 as measured against $7,774 for the state, a deficiency of 17.6%. Half of the families in the county have incomes above this level, and half are below. The per capita income, which is the total income divided by each man, woman and child was $2,010 for Brunswick and $2,492 for the state, a deficit of 19.4%. Poverty level statistics are based on a formula which accounts for number of persons in a family, sex of head of household, agricultural/non-agricultural subsistence, etc. There is no set income below which is considered "poverty stricken", rather, it is a flexible level which considers many components. Once adjustments are made, however, Brunswick still has a larger number of poverty cases. The incidence of poverty for all persons is roughly 36% greater than the state average. Personal income projections computed by the North Carolina Department of Administration for Planning Region O (Brunswick, Columbus, New Hanover, and Pender Counties) predict that the discrepancy between the overall income of the region and that of the nation will slowly begin to close within the coming decades. In 1980, Region O's income is

projected to be 71% of the national average and by the year 2020 should reach 85%. It should be kept in mind that these are very far-sighted forecasts and could change drastically over the next fifty years nevertheless, they can be viewed as a long-term spark of optimism.

UNEMPLOYMENT: JULY - NOVEMBER, 1974

	Brunswick	Columbus	Carteret	New Hanover	Onslow	Pender
July	7.3%	7.0%	3.2%	4.2%	6.9%	7.6%
August	6.6	6.9	2.7	3.8	5.9	9.1
September	7.4	7.2	3.4	4.2	4.8	9.3
October	7.2	8.1	4.5	4.1	4.9	7.4
November	10.1	9.5	6.1	5.8	8.1	9.7

Source: North Carolina Employment Security Commission

AVERAGE ANNUAL LABOR FORCE ESTIMATES 1970-73

Brunswick County	1973	1972	1971	1970
Civilian Labor Force	10,680	10,390	8,480	8,580
Unemployment, Total	480	560	560	430
Rate of Unemployment	4.5	5.4	6.6	5.0
Employment, Total	10,200	9,830	7,920	8,150
Agricultural Employment	530	530	510	560
Nonag. Wage & Salary Emply.	8,340	7,990	6,320	6,490
All Other Nonag. Employment	1,330	1,310	1,090	1,100

INDUSTRY EMPLOYMENT BY PLACE OF WORK

Manufacturing	3,060	2,560	1,480	1,690
Food	120	90	80	80
Lumber & Wood	60	80	90	100
Other Manufacturing	2,880	2,390	1,310	1,510
Non-Manufacturing	5,830	6,330	4,550	3,440
Construction	2,620	2,930	1,240	220
Trans., Comm., & P. Util.	310	660	790	1,010
Trade	1,020	940	750	730
Fin., Ins., & Real Estate	230	200	130	110
Service	250	230	240	190
Government	1,280	1,280	1,360	1,160
Other Manufacturing	120	90	40	20

Source: North Carolina Employment Security Commission

(1969) OCCUPATION BY INDUSTRY OF EMPLOYED PERSONS 16 AND OVER

	Brunswick	North Carolina
Construction	1147 (14.7)	6.7%
Manufacturing	2031 (25.9)	35.4
Transportation, Communications Utilities and Sanitation	757 (9.7)	5.6
Wholesale and Retail	1384 (17.7)	17.6
Financial, Insurance, Business and Repair	367 (4.7)	5.6
Health, Education, Welfare, Legal and Misc. Professional Services	854 (10.9)	14.2
Public Administration	378 (4.8)	3.5
Other Industries (Agriculture, Forestry, Fisheries, mines, Personal Services)	910 (11.6)	11.4
	7828 (100%)	100%

Note: Figures for Southport are unavailable at this time, but should be available soon.

Source: U.S. Census 1970

(1969) DISTRIBUTION OF INCOME FOR FAMILIES

	Brunswick	N. C.
Less Than $1,000	334 (5.4%	3.4%
$1000 - 1999	540 (8.7)	5.4
2000 - 2999	432 (7.0)	5.7
3000 - 3999	449 (7.2)	6.5
4000 - 4999	593 (9.7)	7.2
5000 - 5999	548 (8.8)	8.0
6000 - 6999	496 (8.0)	7.8
7000 - 7999	362 (5.8)	7.7
8000 - 8999	436 (7.0	7.6
9000 - 9999	426 (6.9)	6.9
10000 -11999	665 (10.7)	11.7
12000 -14999	411 (6.6)	10.6
15000 -24999	407 (6.6)	9.0
25000 -49999	84 (1.4)	2.0
Greater Than $50,000	15 (0.2)	0.5
	6198 100%	100%

Source: U. S. Census 1970

(1969) PERSONAL INCOME CHARACTERISTICS

	Brunswick Co.		North Carolina	
	Total	Black	Total	Black
Median Family Income	$6409	$4568	$7774	$4803
Mean Family Income	7468	5740	8872	5682
Per Capita Income	2010	1219	2492	1342
Persons Below Poverty Level	27.7%	51.5%	20.3%	44.5%
Familiies Below Poverty Level	22.9%	44.7%	16.3%	38.7%

Source: U. S. Census, 1970

Section 2: Existing Land Use

The existing land use of the Southport planning area is illustrated on the next page. Together with the accompanying Table 3, the general land use of the community is indicated. The classification of land use was made for the most part in accordance with the U.S. Department of Interior's "A Land-Use Classification System for Use with Remote-Sensor Data". The following is a brief description of the various uses with particular attention given to:

-- Significant land use compatibility problems;
-- Major problems which have resulted from unplanned development, and which have implications for future land use;
-- An identification of areas experiencing or likely to experience major changes in predominant land uses;
-- Areas of Environmental Concern.

TABLE 3

SOUTHPORT LAND USE

Category	Within Corporate Limits Approximate Acreage	Within Corporate Limits Approximate Percent	Extraterritorial Jurisdiction Approximate Acreage	Extraterritorial Jurisdiction Approximate Percent
1. Residential	360.0	29	150.4	6
Single Family	351.0		145.6	
Multi Family	5.1		0.0	
Mobile Home	3.9		4.8	
2. Commercial	22.4	2	17.3	less than 1
3. Industrial	1.6	less than 1	50.0	2
4. Transportation, Communication and Utilities	186.0	15	24.8	1
5. Government & Institutional	69.5	5	3.8	less than 1
6. Cultural, Entertainment & Recreational	3.2	less than 1	0.0	0
7. Agricultural* & Forest/land	235.5	19	1881.3	78
8. Wetlands	244.0	20	270.8	11
9. Undeveloped	120.0	10	0.0	0
Total	1242.2	100	2398.4	100

* Included in forest land due to photo data

Source: Soil Conservation Service aerial photos (2/4/72)
N. C. DNER, DCA Windshield Survey (12/74)
N. C. DOT Aerial Photos (12/18/74)

EXISTING LAND USE MAP

Residential Land Use

This category accounts for 32% of the total land use in Southport. Residents are almost exclusively single family dwelling units. The first problem regarding residential land use is strip development occurring along the major thoroughfares particularly in the extra-territorial area. This threatens to "land lock" quantities of desirable land located behind the roads, and increase the possibility of future blight of houses presently being built along these roads. Another consequence of strip development is the connecting driveways along major thoroughfares. Numerous individual driveways greatly decrease the utility of the road and increase the danger to residents and motoring public.

The second problem relative to residential land use is the condition of homes as witnessed during the land use survey conducted by the Division of Community Assistance personnel in December, 1974. The Bureau of Census in 1970 reported that 14.6% of all housing units (811) in Southport lacked some or all plumbing facilities. However, this represents a reduction in substandard homes since 1960 when 31% of occupied houses lacked some or all plumbing facilities. The City of Southport compares less favorable with the state as a whole. In North Carolina 14.3 percent of all housing units lacked some or all plumbing facilities.

The extra territorial jurisdictional area is and will continue to experience major changes in predominant land use. Increased residential development causing urban sprawl has occurred in areas adjacent to the Carolina Power and Light nuclear plant and Pfizer Industries. Approximately 6% of the total land use in the extra-territorial jurisdiction is devoted to residents. This is the major

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U. S. Bureau of Census, Census of Housing. 1960 to 1970 General Housing Characteristics.

urban use of land in this area.

Commenting further on residential land use in the Southport planning area, one finds, as is the case throughout North Carolina, a growing number of mobile homes. This is particularly true in the extra-territorial area. The mobile home now and in the future will house families for permanent and vacation housing, therefore, the same considerations should be given the mobile home as is given to the conventional residential dwelling.

Commercial Land Use

Less than 3% of the total land use in the Southport planning area is devoted to commercial uses. This is a result of the retail marketing influence of Wilmington. Nevertheless, explanding economic development in Smithville Township has brought about an increase in commercial trade and services - witness the opening of a new savings and loan association, restaurant, and grocery store during 1975.

Also recent development has seen the establishing of a community shopping center at the intersection of North Howe Street and NC 87. Not only will this event spur additional commercial activity (which is permitted by the Zoning Ordinance) along Howe Street but, moreover, it threatens the economic stability of the central business district.

Other areas of commercial concentration are those adjacent to the small boat harbor marina and the Old Yacht basin. These areas, as expected, serve primarily the boating public and commercial fisherman. Naturally the future development of these areas depends on their respective trade.

Industrial Land Use

Until recently the industrial activity in Smithville Township was nominal at best. The construction of Carolina Power and Light's nuclear generating plant (actually CP&L is classified as a utility) and Pfizer's citric acid plant has changed considerably the complexion of the area. However, there has been almost no change in industrial land use inside the city limits. Almost all of CP&L's 3000 acres lies beyond the extra-territorial area and of Pfizer's 1300 acres, approximately 50 acres are within the extra-territorial area. It is anticipated that both CP&L's utility plant and Pfizer, given their location and the commodity produced, will attract additional development within the vicinity. Thus, land which is not owned by either company becomes attractive for a multiple of uses which could serve to reduce the value for potential industry.

From the Community Profile, Southport, N. C., we see that Brunswick County's major industrial employment in 1973 was in non-manufacturing with construction, government, and trade the leading groups. While we do not have specific information for Southport we can surmise that this is representative of Southport since at that time it was the center of county government, home of the county hospital, and near the sites of two large construction projects. Another important employment aspect of the community is the fishing industry. While we are unable to determine the exact value added by this segment we know that it is a commercial and sport fishing center for the county. This is especially important at a time when statistics indicate that the total landings in quantity for shellfish and finfish are decreasing (1960-73) in the state as a whole while Brunswick County has its largest total landings in quantity ever recorded in 1972.

Easley, J. E. Jr. and Beth Sossamon. N. C. Fisheries Data N. C. Agric. Extension Service No. 1974 p. 6 29.

Some of the largest employers in the Southport planning area are:

Company	Year est.	Product	Employees
Blake Builders Supply	1950	building supplies	45
Boiling Springs Const. Co.	1973	grading and paving	65
Brown & Root, Inc.	1969	construction (CP&L)	2000
Caroon's Crab Co.	1965	fresh and frozen seafood	30
Carolina Power & Light	1975	electrical power	175
Daniels Const. Co.	1974	construction (Pfizer)	1040
East Coast Ice & Fisheries	1973	manuf. ice	25
Pfizer, Inc.	1975	citric acid	30

Transportation, Communication, and Utilities Land Use

Transportation, communication, and utilities represent the third largest land use within the city limits with approximately 17% of the total land. The bulk of this consists of street rights-of-way which are in many instances 99 feet in width.

Table II

Southport, N.C. 1974 Average Daily Traffic Count

Location	ADT
N. Howe St. at city limits	8850
Howe St. at Moore St.	6200
just north of junction NC211&87	6200
Moore St. 100 block	3000
North Leonard St. & SR1526	3050
Southport-Fort Fisher Ferry	77

These figures indicate more than a 168 per cent increase in traffic along North Howe St. since 1967. Other thoroughfares have experienced a considerable increase in traffic volume too. Increased traffic volume and generally inaccessible areas in the northeast quadrant of the planning area produce a poor circulation pattern. Future subdivision and major thoroughfares need to be better coordinated. Additional problems encountered with traffic circulations are: natural soil and water barriers throughout the community; unpaved streets particularly in the northwest quadrant; narrow pavement; and development within rights-of-way particularly in the City.

N. C. DOT, Div. of Highways Raleigh 1974

N. C. Dept. of Cons. & Dev., DCP. Land Dev. Plan, Southport, N. C. 1969 P. 30

Other uses within this category include the sewage treatment plant on West Street and water pumping stations on Howe, Leonard, and Moore Streets.

Government and Institutional Land Use

This category occupies 6 percent of land use within the corporate limits and less than 1 percent in the extraterritorial area. As of this date there are three facilities in this category whose future is unknown. They are: Dosher Memorial Hospital, County Courthouse and Tax Office Department and old primary school. Since several local agencies are in need of new facilities it would be in the best interest of the community to make these existing facilities available by offering first refusal to local agencies once they are vacated. Other large land uses in this category are: small boat harbor, new primary school, Fort Johnston, Southport city garage and cemeteries, and churches.

There are ten churches located in Southport. Many of these, such as Saint Phillip's Episcopal, are of great historical value and reflect past period of architectural style and achievement. A future community appearance/architectural review program should address religious centers to protect them from enroaching land uses.

The Southport schools are operated by one administrative unit: Brunswick County School System. South Brunswick High School serves the Southport planning area and is located

The Southport schools are operated by one administrative unit: Brunswick County School System. There are two schools within the city limits of Southport: Southport Primary School located on West George Street and Southport Middle School located on 8th Street.

Cultural, Entertainment, and Recreational Land Use

This is one of smallest categories of land use acreage in Southport. It consists primarily of recreational use. Franklin Square Park is located adjacent to the Southport City Hall, and the old Southport High School athletic field is located at the East Nash Street. A neighborhood park was recently dedicated at the corner of Owens and Clarendon Streets, and another at the corner of Moore and Caswell Streets. There is a Municipal fishing pier at the end of Davis Street There are additional facilities owned by the Brunswick County School System, but are not at this time commonly used by the general public. There is also a community center building adjacent to Fort Johnston for meetings by local civic groups and the Frying Pan Lightship tour.

The 1969 Land Development Plan and the 1974 Community Facilities Plan identified the tremendous need to upgrade recreational opportunities in Southport. At present the Board of Aldermen are negotiating with property owners to purchase the area between the Municipal pier and Whittler's Bench for a waterfront park. This is a highly desirable site for recreational purposes. Additional consideration has been given recently to the hiring of a full time recreational director. If these two events occur then recreational activities will be given a significant commitment by the City of Southport which it so desperately needs.

Agriculture and Forestland

This category represents approximately 21 percent of land use within the corporate limits and nearly 78 percent in the extraterritorial area. The amount of acreage was determined by using SCS aerial photographs (2/5/72). Due to the date of the photos it was not feasible to delineate agricultural land separate from forestland.

Owing to recent economic development pressure and urban sprawl this category is likely to experience the greatest transformation in the future. Land that is owned by individual property owners but not forest product companies is more susceptible to this pressure. Thus, it is most important that agricultural and forestland conversion to urban land be given careful review so that new uses will be compatible. An example is best illustrated by the construction of the Pfizer plant which was previously an area of agriculture and forestry. These "pressures" will be exerted to develop lands between Pfizer and Southport, thereby contributing to further urban sprawl and inefficient utility service.

Wetlands

Wetlands include the following land uses: low tidal marsh, other marsh land, water, estuarine streams and waterways. These land uses were identified from the following sources:

SCS aerial photographs 2/5/72

N.C. DOT aerial photographs 12/18/74

N.C. DNER, Marine Fisheries, aerial photographs 1973

For various reasons, such as changes in watercourses; difference in scale of photos; and date and time differences of photos, it is most difficult to analyze the impact that development is having upon wetlands. Nevertheless, the most notable changes have occurred along the waterfront and surrounding the mouth of the tributaries which drain the upland areas of Southport. Sediment carried downstream is deposited at the junction with larger water bodies. In some cases this process has been speeded up with the filling in of areas such as Bonnett's Creek, small boat harbor, and near Municipal pier by man. Due to the significant part wetlands play in the development of our marine and wildlife resources, it is imperative that these areas be preserved in their natural state.

Wetlands constitute almost 10 percent of the total land area in the planning area. Price's Creek and Bennett's Creek are threatened more by recent development than others and should be given adequate protection for future survival.

Undeveloped Land

Undeveloped land is vacant, unimproved land without agricultural or forest use. This category occupies approximately 11 percent of the land in Southport. This is an important resource for prudent development in the future. City officials should encourage and promote the utilization of this land in order to achieve"economy of scale" in terms of municipal services.

Areas of Environmental Concern

The Southport Planning area contains the following areas of environmental concern:

Coastal Wetlands	CW
Estuarine Waters	EW
Historic Places	HP
Coastal Flood Plains	CF
Areas Containing Unique Geological Formations	GF
Public Trust Waters	PT

To some degree, some more severely than others, all the areas are experiencing the impact of recent development. A detailed description of each area and its affect upon adjacent land use appears later in this text.

Section 3: Current Plans, Policies, and Regulations

The following plans have been prepared by Southport with technical assistance from the Division of Community Assistance and have significant implications for land use:

Plan	Date Published
Phase I Population & Economy Study	January 1969
Phase II Land Use Survey & Analysis	January 1969
Phase III Land Development Plan	April 1969
Extraterritorial Area Land Development Plan	February 1973
Community Facilities Plan, Public Improvement Program Capital Improvements Budget	March 1974
Initial Housing Element	June 1974
Community Profile	January 1975

The following land use control regulations have been adopted by the City of Southport:

Regulation	Date Adopted
North Carolina State Building Code (including heating, plumbing, etc.)	July 12, 1972
Subdivision Regulations	July 12, 1972
Zoning Ordinance	July 12, 1972

The City of Southport has means of enforcing these regulations but has been hampered by a part-time building inspector, confusion on the part of boards (e.g. Board of Adjustment)on their duties and responsibilities, and unwillingness of governing body to follow recommendations of advisory groups and city attorney.

Article III - Public Participation Activities

Section 1: Public Participation Process

The Coastal Area Management Act could not have come at a more critical time for the Southport planning area. Yet, land use planning has had to take a back seat to more pressing political issues in Brunswick County. The relocation of the county seat and the construction of the new hospital which will occur near Bolivia have consumed a major portion of the elected officials' time and citizens' attention.

However, efforts were made to provide information and to solicit actual involvement in the preparation of Southport's Land Use Plan. Among the steps taken were:

1) Reorganizing the Planning Board into a functioning advisory group;
2) Conducting two opinion surveys; mailing 1000 questionnaires to water and sewer customers and sample interviews conducted by high school students in all neighborhoods;
3) Meetings with local civic groups to discuss community issues and goals;
4) Open public meetings conducted by the Planning Board employing the Nominal Group Technique to identify and prioritize issues as perceived by that group; and
5) Local weekly newspaper coverage.

An initial survey was conducted by mailed questionaires to 1000 residents. The results appear below. Furthermore, high school students conducted a random survey by interviews covering all neighborhoods which essentially supported the results of the first survey.

The following represents an analysis of opinions of the 130 persons who took the time, including one individual who penned a poem to emphasize his or her dismay (a copy of which appears on the last page).

The median age of the respondent is 59 years of age--generally of an age group who would have more time to complete a questionnaire but, certainly not to be considered a cross section of the community. (In 1970 the median age of Southport's population was 32 years of age.) Of those responding, eighty-eight percent live in a single-family dwelling.

Community Growth

The fifth question dealt with the amount of community growth desired. Forty-seven percent wanted a slight increase in population; thirty-three percent wanted a great increase, while seventeen percent wanted the population to remain the same.

Development Preferences

The sixth question asked which type of development would you like to see more or less of in Southport? The following types of development were requested most often in order of priority: single-family dwelling, recreational facilities and public open space, industrial, commercial and apartments. The least requested type of developments were: mobile homes and condominiums.

Reasons for Locating

The seventh question dealt with the reasons for locating in Southport. In most cases, several reasons were indicated thus, of 220 selections: thirty-two percent chose the community for its pleasant surroundings; twenty-four percent because of its closeness to family and friends; and sixteen percent said because it was close to work. Of all the choices provided the least selected was due to the proximity to the beach and low taxes, all of which was not too surprising in view of the median age of the respondee.

Public Expenditures

The eighth question probed which areas do you feel more or less public funds should be spent? The categories receiving the highest number of votes in order were: park and recreational facilities and programs, water and sewer service, fire and police protection, and roads. The categories receiving the fewest number of votes in order were: industrial development, (it should be pointed out that while this category was number one for least expenditures, it was still less total votes than the category receiving the fewest votes for more expenditures), environmental protection, and town management.

Likes and Dislikes

The ninth question was, what do you like most about Southport? The responses occurring most often were the people, location, climate, and the hospital. The tenth question asks just the opposite. Items mentioned must frequently were: too rapid pace of growth, unsightly and unkept yards, lots, and rights-of-way, and roaming dogs.

Areas of Environmental Concern

Question number eleven was to determine whether there was support for restrictive development along fragile and biological productive areas of the coast. From the response, it may generally be concluded that the respondents were opposed to development on land near inlets, marshes and dunes; while permitting to some degree, development on beaches and long the inland waterway.

Areas for Preservation

Question number twelve asks for any specific locations which one felt should

be preserved or protected in its natural state. The most frequently mentioned areas were: Franklin Park, waterfront, old yacht basin, Bonnetts Creek and other watercourses. Additional comments offered were regarding the maintenance of Dosher Hospital, the need for a dog ordinance, and additional boat access and public parks.

Section 2: Major Issues

In order to formulate a series of goals and objectives which can in turn be molded into policies for future development, we must identify the major land use issues facing the Southport planning area. The following is a discussion of issues under five broad headings. An issue is defined as "a point of debate or controversy" and only through a discussion of all the issues can we hope to begin to achieve the optimum accommodation of spatial growth.

Impact of Population and Economic Trends

The Southport planning area has experienced unparalleled economic growth in its history. It is a difficult task to measure the long-term impact of the development which has occurred. We know that it has provided benefits in terms of: increased job opportunity, more commercial trade and services, and an increased tax base to support governmental services to mention a few. However, we also know that unless the proper development policies are implemented, that this unprecedented growth can cause unmanageable consequences in terms of increased school enrollment, unmet health care needs, traffic congestion, spiraling demand for police and fire protection, increased social services demand, unavailability of adequate recreational facilities and continued demand for water and sewer services also

The important impact of this new growth will be felt upon the policies, ordinances, and administrative mechanisms which are presently in place. It has been pointed out by citizen survey, governmental bodies, and in public discussion of the general laxity and arbitrariness in which many adopted policies and ordinances are presently being enforced by City officials. Vested interests will continue to exert pressure and influence on City policy.

Another impact in the Southport planning has resulted in an increased community demand for "low density sprawl". Low density sprawl is defined as the entire community consisting of single family homes, 75% sited in a traditional grid pattern and the rest clustered. Neighborhoods are in a leapfrog pattern with little contiguity. As indicated by the land use survey analysis, the Southport planning area clearly exemplies this point and already we see signs of this pattern continuing. Unfortunately, the cost analysis of this pattern of development as compared with "combination mix" and "high density planned" reveals that in every factor (operating and maintenance cost, water pollution generation, energy consumption, land utilization water consumption, and capital cost) the overall cost to the neighborhood or community is significantly more.[1]

In particular, along Jabbertown Road and Moore Street extension, residential development has occurred as opposed to the development of available residentially zoned land located within the City limits. The aging solution to this trend--annexation--only perpetuates the problem. Furthermore, residential development is not the only land use affected by urban sprawl. Strip commercial development which is sanctioned by the Zoning Ordinance along North Howe Street, NC 133 and 211, threatens a very attractive and viable central business district.

Another impact of recent population and economic growth has been the increased traffic congestion and lack of accessibility particularly in the northeast quadrant. Interestingly enough, is the fact that Brunswick County has one of the highest traffic accident death rates of any county in southeastern North Carolina. Associated with congestion is the potential for water, air, and noise pollution which affects the social as well as the physical environment. While there is a lack of specific monitoring data, engineering calculations would suggest that water and air resources have probably experienced some contamination as a result of recent development.

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[1] Real Estate Research Corp., The Cost of Sprawl, Executive Summary, April 1974, Page 2-8.

Another impact is speculation. Much of the haphazard and unplanned growth occurring around Southport can be traced to land speculation. Strip developments as previously mentioned form a thin veneer of intensive land use that hides much larger areas of undeveloped vacant land. Most of these interior lands are being held with the hope that they will eventually command a higher price.

Other land use issues are: loss of open space, use of the best agricultural land for development, and premature land development.

Housing and Other Services

The primary housing and housing related controversies in the Southport planning area are: public concern over subsidized housing; local responsibility for increasing housing opportunity; absence of vacant standard units; non-available variety of housing; quantity of substandard units; high percentage of substandard units which are rental properties; scattered trash and abandoned vehicles throughout the community; poor street conditions in substandard housing areas; and the City's unofficial posture to discourage the use of mobile homes yet an obvious reluctancy to abide by land use controls as adopted.*

The two most controversial issues in Brunswick County are over the relocation of the county seat and the establishment of a new county hospital near Bolivia.

Due to recent growth in the Southport area and its environmental attractiveness, the relocation of the county seat offices would not appear to be a prolonged economic loss to the Southport business community. Many county departments are quartered in temporary offices.

The construction of the new county hospital has been resisted by residents of the Southport area only if it means the closing of Arthur J. Dosher Hospital in Southport. Recent growth in the Southport area can be attributed in part because of this facility. The community does not want to break commitments to its citizens.

The major substandard housing area lies in the northwest quadrant bound by Howe, Burrington, Ninth and Brown Streets. Good housing is needed for industrial stability and growth.

The city of Southport provides the following services and facilities to its residents: City Hall, police and fire protection, public library, water and sewer service, electric distribution service, recreation, refuse collection and disposal, streets, city garbage, cemeteries, street lighting and signs. Of those services and facilities, the following have been recommended for major improvement: fire protection improvement by obtaining a Class 7 rating; water and sewer service

* Department of Natural and Economic Resources, Division of Community Assistance

capacity and extension improvement; acquiring adequate and highly desirable recreational areas.*

Conservation of Productive Natural Resources

Foremost among the Southport planning area's productive natural resources are the applicable Areas of Environmental Concern. A detailed discussion of relevant Areas of Environmental Concern appears later. The designation and enforcement of AEC policy objectives and appropriate uses will no doubt give rise to dispute.

Soils, surface water, groundwater, and air quality are productive natural resources which deserve the utmost consideration in the management of these limited natural resources. A thorough examination of these factors begins under the Article IV "Constraints".

Protection of Important Natural Environments

Probably the most important natural environment in the Southport planning area is the waterfront which constitutes several natural resources. While this environment provides recreation for some and a livelihood for others, it is largely responsible for the settlement of Southport. Without a doubt, the waterfront and its access to the ocean is Southport's greatest asset. As the community continues to grow there will be added "pressure" for developing the waterfront for a multiple of uses. As the existing land use map indicates the waterfront supports a variety of uses already: residential, commercial, governmental, industrial, utilities, and recreational. Competition for space along the waterfront will become even more keen. This environment directly affects a high percentage of the residents in the planning area; therefore, it warrants a great deal of protection so that a maximum number of people will continue to benefit from its use.

Specifically, the municipal dock and yacht basin and the attendant development nearby which services the fishing fleet should continue to be protected from

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* Department of Natural and Economic Resources, DCA Community Facilities, Public Improvements Program, and Capital Improvements Budget, Southport, N.C., March 1974, p. 1-22.

enroaching uses. Also, the area just northeast of the City Limits provides excellent development sites for future industrial activity.

Protection of Cultural and Historic Resources

There are certain unique features that readily represent the character of an area. This is particularly true in the Southport planning area. On a drive through the community one discovers that Southport is rich in history with its: age old tree lined streets, Fort Johnston, Whittler's Bench along the waterfront, Frying Pan Lightship, Franklin Park, Widow's Walk on a waterfront home, Bennett's Creek, and the view towards Baldhead Island Lighthouse. All these features as well as moored fishing boats at the yacht basin, display a quaint and friendly fishing village. Yet, there remain a number of features which would improve and heighten the attractiveness of the community. The property between Whittler's Bench and the Municipal Pier could provide the community with an ideal location for a waterfront park. Another feature not yet capitalized on by the community is the promotion of its historical significance. A local museum or an information center to house artifacts and tell the Southport story could serve a vital community interest.

Section 3: Development Alternatives

There are several development alternatives for Southport. Since the major land use in Southport is residential, we can describe these alternatives in terms of residential density: low density with 1 to 8 dwelling units per residential acre; medium density with 8 to 16 dwelling units per residential acre; and high density with 16 dwelling units or more per residential acre.

The present density in Southport is 2.6 dwelling units per residential area. Using the above standard, this is low density which consists almost entirely of single family dwellings in a traditional gridiron pattern. This type of development is an easy route for municipal approval and a moderate land value return. However, land consumption is high and cost benefit ratio for municipal utilities is high. Annexation of sparsely settled areas perpetuates this "leap frog" development pattern. Unless another alternative is selected this pattern will continue in Southport.

Another development alternative is high density development with 16 dwelling units or more per residential acre which necessitates multi-storied structures. While marketability is often questionable, this density provides greater land value return. It is a more economical way of providing services. Based on available information, approval is unlikely by the municipal governing body because of local sentiment and prejudice.

The third development alternative is medium density with 8 to 16 dwelling units per residential acre. This density may be accomplished by the use of cluster development of townhouses. This type of development affords lower land consumption, better cost benefit ratio for municipal services and positive compromise on other factors. Clustering in small groups would result in minimum visual change to the property and marketability would seem high. However, this alternative would require the implementation of at least the following citywide policies: 1) encourage development to occur within existing city limits; 2) limit future municipal services to only areas within the corporate limits; and 3) revise zoning and subdivision control ordinances to permit cluster development at higher densities.

Section 4: Objectives and Policies for Dealing with Issues

A great deal of development pressure has already been exerted upon Southport. Consequently, the overall appearance of the community shows signs of change and will no doubt continue to do so. The amount of change tolerated depends upon the citizens of the community. From all available information (surveys, interviews, public meetings), people in the Southport planning area want a viable community, yet, they do not want to lose the assets which the community presently enjoys. Thus, it is imperative that the City's elected and appointed officials and citizens vigorously support the goals and objectives enumerated herein. Only when these goals and objectives are adopted and adhered to as the City's policies for land development and future growth, will the community retain the pleasant characteristics it has today.

In order to avoid any misunderstanding, the frequently used terms of goal, objective and policy are defined as follows:

goal - a desired future condition;

objective - a task or course of action to be performed; and

policy - a commitment to action to reach a goal.

In the broadest sense, the goal of Southport planning area is to improve the social, economic, and physical environment of the community as economically as possible. Within this broadly stated goal, several specific goals and objectives relating to the physical development of the area can be stated.

Goal: Provide a management system capable of preserving and managing the natural resources in the Southport planning area.

Objectives:

- designate a code enforcement official to enforce the adopted N. C. State Building Code, Subdivision Regulations, Zoning Ordinance, and others.
- support the findings of fact and recommendations of appointed boards, commissions and professional staff.

Goal: Develop adequate and efficient public utilities and community facilities.

Objectives:

- encourage development within the existing corporate limits and avoid "urban sprawl".
- purchase waterfront property for a community park.
- provide service and facilities to all areas within the corporate limits before annexing new areas.
- implement the recommendations of the Community Facilities Plan, Public Improvements Program, and Capital Improvement Budget, Southport, N. C. 1974.
- improve fire protection service by acquiring a class 7 rating.

Goal: Provide safe, decent, and a variety of housing for all citizens.

Objectives:

- aid property owners in the demolition of dwelling units unfit for human habitation.
- seek, encourage and support the development of publicly assisted housing projects available from Federal agencies such as the Farmer's Home Administration 502 Program. and Community Development Act of 1974.
- establish a zoning district which would permit a mobile home on an individual lot in a specified area.

Goal: Promote accessibility and safety in area transportation.

Objectives:

- emphasize safety and a continuous street improvement and construction program.
- review thoroughly new residential development plans and insure that they comply with Subdivision Regulations.
- mutually adopt a detailed thoroughfare plan with the N.C. Department of Transportation, Division of Highways.

- prohibit development in any Area of Environmental Concern which would have a substantial likelihood of causing pollution of the waters of the State to the extent that such waters would be closed to the taking of shellfish under standards set by the Commission for Health Services pursuant to G.S. 130-169.01.
- prevent development in any Area of Environmental Concern which would result in a contravention or violation of any rules, regulations, or laws of the State of North Carolina or of the City of Southport and its extraterritorial jurisdiction in which development takes place.
- adopt a flood plain district as part of the Zoning Ordinance which would protect the flood prone areas as identified by the U.S. Corps of Engineers and HUD - Federal Insurance Administration.
- employ full-time qualified personnel in order to improve the City's management capability.

Goal: Preserve the existing character of a "small fishing village".

Objectives:

- establish an appearance commission to preserve the community's aesthetic quality with power to review architectual plans in accordance with GS 160A-451.
- promote the history and heritage of the community by organizing and sponsoring an information center.
- cooperate with the county in the establishment of a Southport-Brunswick County Historic District Commission.

Article IV - Constraints

Section 1: Land Potential

a: Physical Limitations

An analysis of land suitability and capacity of community facilities will aid in determining a land classification map. Moreover, it will give a more complete picture of the Southport environment.

Two man-made hazards are the Carolina Power and Light nuclear generating plant and the Military Ocean Terminal at Sunny Point. Neither facility is located within the territorial jurisdiction of Southport and the degree of hazard presented in the event of a national emergency or natural catastrophe is limited. However, for planning purposes it is sufficient to note their presence and the potential (no matter how remote) hazards that exist.

There are three natural hazards applicable to the Southport planning area: estuarine, sound and river erodible areas, flood hazard areas, and the controversial subject of the potential for earthquakes. Representatives of the U. S. Soil Conservation Service have indicated that they are unaware of any significant shoreline erosion to the Southport waterfront.* In regard to flood hazards there are two types: "riverine" which is caused by precipitation and "coastal flooding" caused by wind-driven water by the coincident of storm and high tides. There is no coastal hazard area comparable to the riverine "floodway" which must be maintained free of obstructions to convey

* Telephone conversation October 6, 1975, with Mr. L. D. Hunnings, SCS,

flood flows. This is perhaps the most important difference between regulations for coastal and riverine areas. Coastal regulations are not designed to preserve flood flows yet high hazard coastal areas deserve special attention. Beaches and shorelines are buffeted by high energy waves that destroy all but the strongest structures. At some locations, special regulations are needed to protect dunes and other natural protective barriers which blunt the force of wind and waves and minimize property damage.

Many coastal communities like Southport are constructed at the confluence of a river and the sea, a location subject to both riverine and coastal flood problems. Here regulations pertaining to both sorts of problems are needed. Special regulations are also needed to meet inland drainage problems at many coastal locations even without a major river or stream. Torrential rains accompany hurricanes and coastal storms often overtax drainage channels. Flood problems arise if seawalls, dikes, or other engineering works constructed to prevent flooding by onrushing seas block the seaward flow of water from inland drainage channels.*

At present Southport is an eligible community for Federal Flood Insurance under the emergency program. More detailed information which would qualify the community for the regular program is now being prepared by HUD and Corps of Engineers and is scheduled for release in 1976. Preliminary information reveals that a great amount of Southport's land

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* U.S. Water Resources Council, Washington, D. C. Regulations of Flood Hazard Areas, Vol. II parts V-VI 1971 p. 122

area is within a 100 year flood area which tentatively coincides with the 14 foot contour. (See Flood Prone Map.)* A velocity zone which is a result of coastal flooding is tentatively delineated along the building line and where no buildings exist it will be at "tree level".**

"The summary presented below was written for the Southport land-use plan, but it pertains to the whole Southeastern Coastal Plain of North Carolina with little or no modification.

Carolina Power and Light Company at the direction of the Nuclear Regulatory Commission is carrying out an investigation to determine whether or not there is a significant seismic risk in the Southport area. Seismic monitoring is taking place at several stations in Brunswick County. At present there are no indications that should cause citizens to be concerned.

The factors that determine the type and extent of damage substained as the result of an earthquake include: a) distance from the epicenter of the earthquake, b) distance from the area where an active fault, if present, can be traced on the ground surface, c) magnitude of the earthquake, d) geology, soils, and surface configuration of the site, and e) structural integrity of buildings, etc.

With respect to earthquakes those factors that are of concern in land-use planning are 1) location of areas where earthquake epicenters are concentrated, 2) location of fault traces on the ground surface, and 3) geology, soils, and surface configuration of building sites. In the case of Southport we have no history of seismic activity which would enable us to make any plans on the basis of 1 and 2 above. Thus, we look for structurally poor ground.

Experience shows that intensity of shaking is greatest in places underlain by young, soft, water-saturated sediments——not only is shaking greater in intensity but also failure of the ground itself. Ground failure includes liquefaction, landslides, land spreading, ground cracking, and differential subsidence.

Given that much of the Southport area is underlain by materials like those above what do we look for? We look for areas that are relatively less stable than others such as filled lands---either formerly marsh or bays, areas with an unusually high water table, and poorly drained areas. Existing soil maps might help delineate some of these areas, but to properly examine potential earthquake hazards a detailed hazards analysis would be necessary. Such an analysis would include geologic mapping and an overall ground stability analysis with an assessment of the potential for failure of the ground at depth as well as near the surface. It is my judgement that the expense of such an analysis is not warrented at this time."***

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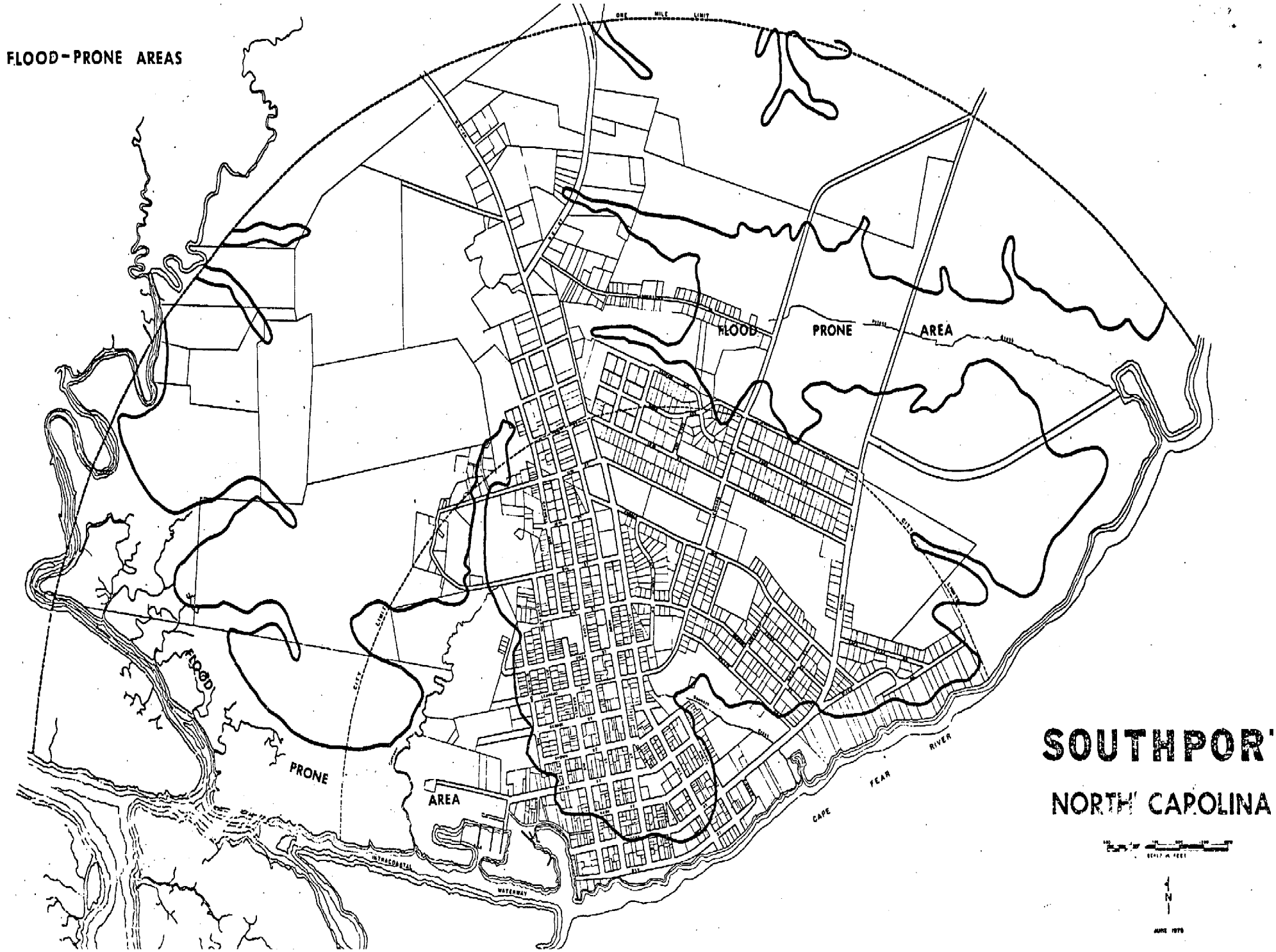
* U. S. Department of Interior, Geological Survey Flood Prone Areas Southport, N. C. 1973

** Telephone conversation, Mr. Bernie Ingram, Corps of Engineers

*** Memo from Mr. E. R. Burt, Mineral Resources Sec. DNER Raleigh, N. C. Feb. 3, 1976

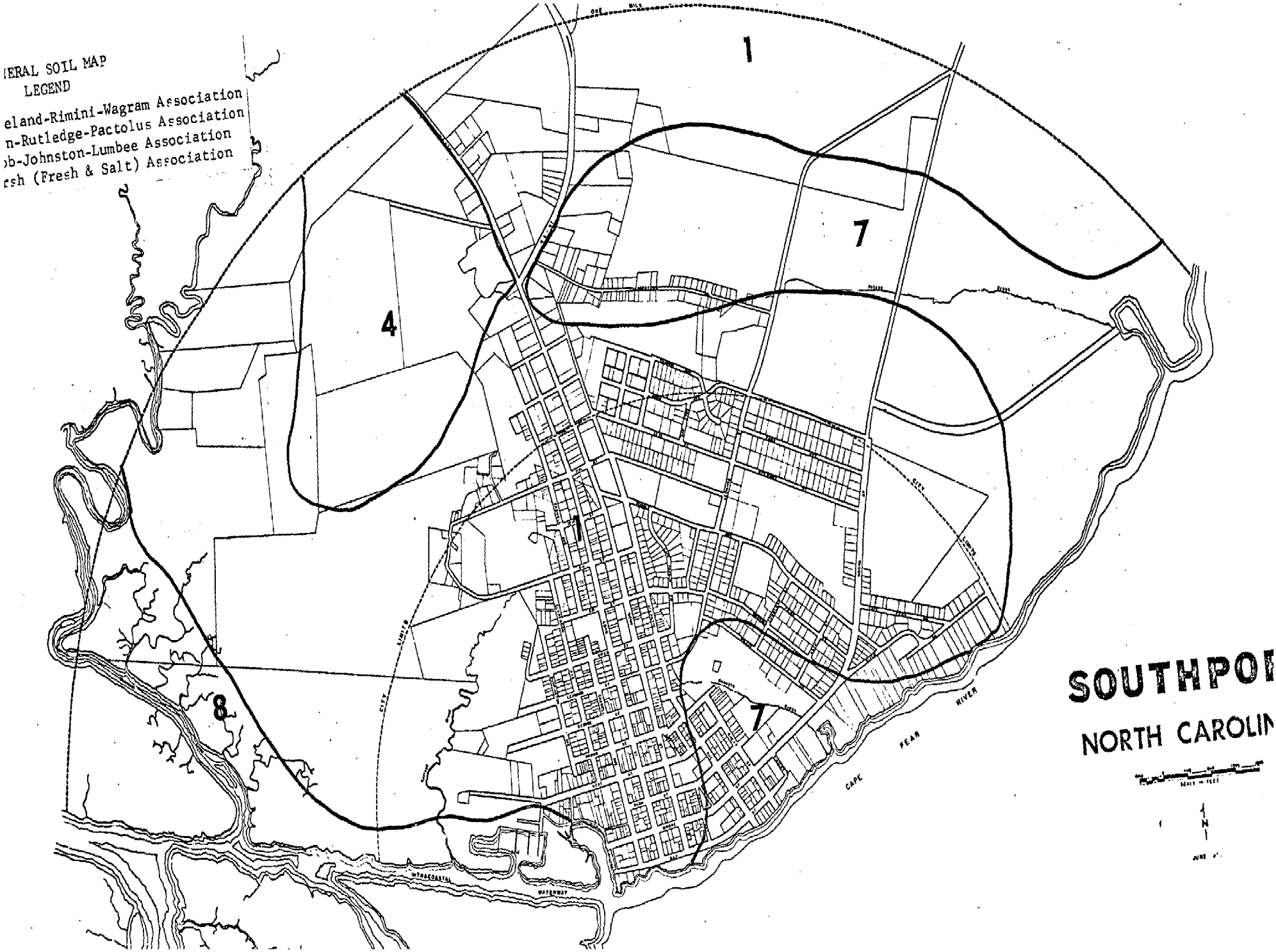

FLOOD-PRONE AREAS
ONE MILE LIMIT
FLOOD PRONE AREA
FLOOD PRONE AREA
INTRACOASTAL WATERWAY
CAPE FEAR RIVER
SOUTHPOR
NORTH CAROLINA
N

Soils

The soils of an area will greatly determine the extent of present development and the suitability for future growth. Unless an area has proper soils, urban development that occurs will be costly and may pose a health hazard. Soils occurring together in a characteristic and repeating pattern constitute a general soil area or soil association. An association consists of two or more principal soils and at least one minor soil which may be quite similar to or quite different from each other. Although closely associated geographically, the soils in an association may differ in their suitability for agricultural and non-farm use.

A General Soil Map (Map II) appears on the following page which shows the location and extent of the four soil associations in the Southport planning area. Such a map provides the general soils data needed to plan the efficient use and orderly development of the community's soil resources. The General Soil Map is useful for (1) those who want a general idea of the soils, (2) those who want to compare the potential of different parts of the planning area, or (3) those who seek the location of areas suitable for specific types of land use. It is not designed to show accurately the kinds of soil on an individual tract of land and is not suitable for planning such units land.

In addition, immediately following the General Soil Map is a Soil Interpretation Chart indicating the suitability of the principal soils for various uses. It gives their limitations for septic tank filter fields, recreation uses, foundations for light industry and general agriculture.


IERAL SOIL MAP
LEGEND
eland-Rimini-Wagram Association
n-Rutledge-Pactolus Association
ob-Johnston-Lumbee Association
rsh (Fresh & Salt) Association
1
7
4
8
7
SOUTHPOI
NORTH CAROLI
CAPE FEAR RIVER
INTRACOASTAL WATERWAY

From the Soil Interpretation Chart it can be seen that only the Lakeland-Rimini-Wagram Soil Association has generally slight limitation for structures whose footings are in subsoil. The other three associations have severe limitations due to high water table and flooding characteristics. Shallow soils are generally not present since the coastal plain area is rock free as a result of sedimentary deposits.

With the general exception of the Lakeland-Rimini-Wagram Soil Association the soils range in drainage capability from somewhat poorly drained to very poorly drained soils.* The Lakeland-Rimini-Wagram Soil Association generally is well drained. From the Soils Interpretation Chart generally all the soils in the Southport planning area are unsuitable for septic tank filter fields. However there are pockets of soils such as the Wagram soil group within the Lakeland-Rimini-Wagram Associations which contain favorable soils. Severe limitations for almost all community development type uses are found in the Leon-Rutlege-Pactolus and Capers Soil Associations. Thus, the soils in the Southport area are generally poor outside the Lakeland-Rimini-Wagram Soil Association. Fortunately, as one can see from the General Soil Map, most of the total land area is within the Lakeland-Rimini-Wagram Association.**

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* Phillips, Joseph A. and others Soil Associations of the Coastal Area Management Area. NCSU June, 1975.

** SCS, An Appraisal of Potential for Outdoor Recreation Development

SOIL INTERPRETATIONS CHART

SOUTHPORT, N. C.

Soil Associations	% of Assoc.	Limitations For Dwellings with Sewerage System	Septic Tank Filter Fields	Recreation Camp Sites	Picnic Areas	Intensive Play Areas	Paths & Trails	Light Industry[1]	Suitability For Roads & Streets[2]	General Agriculture	Woods
LAKELAND-RIMINI-WAGRAM											
Lakeland	60	Slight	Slight-Severe[3]	Severe ST	Severe ST	Severe ST	Severe ST	Moderate BS	Slight	Fair-Poor	Poor
Rimini	20	Slight	Severe-Perc[3]	Severe ST	Severe ST	Severe ST	Severe ST	Slight	Slight	Poor	Poor
Wagram	10	Slight	Slight	Moderate ST	Moderate ST	Severe ST	Severe ST	Slight	Slight	Fair-Good	Fair
LEON-RUTLEGE-PACTOLUS											
Leon	55	Severe WT	Severe WT	Severe WT	Severe WT	Severe WT	Severe ST	Severe WT	Severe WT	Poor	Fair
Rutlege	20	Severe WT Fl	Severe WT Fl	Severe WT Fl	Severe WT Fl	Severe WT Fl	Severe WT Fl	Severe WT Fl	Severe WT Fl	Poor	Fair-Good
Pactolus	15	Moderate Severe WT	Moderate Severe WT	Moderate Severe WT	Moderate WT Fl	Moderate Severe WT	Moderate WT Fl	Severe WT	Moderate Severe WT	Fair	Fair
BIBB-LUMBEE-JOHNSTON											
Bibb	40	Severe WT Fl	Severe WT Fl	Severe WT Fl	Severe WT Fl	Severe WT Fl	Severe WT Fl	Severe WT Fl	Severe WT Fl	Poor	Good
Lumbee	20	Severe WT Fl	Severe WT Fl	Severe WT Traf	Severe WT Traf	Severe WT Traf	Severe WT Fl	Severe WT Fl	Severe WT Fl	Fair-Good	Good
Johnston	20	Severe WT Fl	Severe WT Fl	Severe WT Fl	Severe WT Fl	Severe WT Fl	Severe WT Fl	Severe WT Fl	Severe WT Fl	Poor	Good
CAPERS	100	Severe WT Fl	Severe WT Fl	Severe WT Fl	Severe WT Fl	Severe WT Fl	Severe Fl TSC	Severe Fl TSC	Severe Fl TSC	Poor	Poor

[1] Structures whose footings are in subsoil

[2] Refers to roads and streets that have subsoils for base

[3] Possible contamination of shallow water supply

Abbreviations for Limiting Factors:

BS - Bearing Strength
FL - Flood Hazard
WT - Water Table
Traf - Trafficability
Perc - Percolation Rate
TSC - Traffic Supporting Capacity
ST - Surface Texture

Definitions of Soils Limitations

None to Slight — Soils have properties favorable for the rated use. Limitations are so minor that they can be easily overcome. Good performance and low maintenance can be expected from these soils.

Moderate — Soils have properties moderately favorable for the rated use. Limitation can be overcome or modified with planning, design, or special maintenance.

Severe — Soils have one or more properties unfavorable for the rated use. Limitations are difficult and costly to modify or overcome, requiring major soil reclamation, special design or intense maintenance.

URCE: SOIL CONSERVATION SERVICE, BRUNSWICK COUNTY
AN APPRAISAL OF POTENTIAL FOR OUTDOOR
RECREATION DEVELOPMENT, AUGUST 1973

Hydrogeology

An understanding of the hydrogeology of the area is the first step toward evaluating the availability, occurrence, and chemical quality of the ground water in the planning area. The void spaces between the rock materials that underlie Southport constitute the reservoir in which the water is stored and the conduits through which the water moves. While a thorough examination of the geology and ground water has not been completed at this time, there are pertinent facts that have been identified by the Regional Hydrologist with North Carolina Department of Natural and Economic Resources.*

"Although located in the Lower Cape Fear River Basin, Southport is not in a designated public water supply watershed since surface waters do not supply the City; Class A2 surface waters are unavailable for use and hence ground water resources supply all water needs.

Hydrogeologically, Southport is complex. A post-miocene aquifer exists between land surface and approximately 40 feet below land surface; this aquifer consists of sand and contains potable water under water table conditions. Below the post-miocene is the tertiary system aquifer, the primary source of Southport's water supply. Porous and permeable limestone provides the geologic framework in which excellent quality ground water is stored under artesian or near artesian conditions. The tertiary system aquifer is approximately 140 feet thick and extends from 40 feet below land surface and 200 feet below land surface. Probably, the post-miocene aquifer and the tertiary sustem aquifer are hydraulically connected.

Between 200 feet below land surface and 1550 feet below land surface is the upper, middle, and low cretaceous system acquifer. Brackish ground water is contained within unconsolidated sands under artesian and flowing artesian conditions. Basement hard rock is encountered at 1550 feet below land surface.

* Memo from Mr. Rick Shiver, Regional Hydrologist, N. C. Department of Natural and Economic Resources, Wilmington September 1975

Ground water recharge to the post-miocene aquifer by direct infiltration of rainfall is active in Southport. As the post-miocene aquifer is hydraulically connected to the tertiary system aquifer, recharge to the post-miocene aquifer results in effective recharge to the tertiary system aquifer.

Groundwater from the post-miocene aquifer is of potable quality and exists in significant quantity. Ground water from the tertiary system aquifer is of excellent potable quality and is available in large quantities. However, it is suspected that the quality and quantity of ground water from both aquifers is in jeopardy. It is suspected (but not yet substantiated) that the Brunswick Steam Electric Plant (CP&L) canal, the inland waterway, and the dredged Cape Fear River are man-made activities which have allowed brackish water to enter the post-miocene aquifer and tertiary system aquifer.

Therefore, these suspected sources are responsible for initiating/accentuating a salt water encroachment problem. To preclude further quantity and quality problems, man-made activities which would have detrimental effects on the aquifers should be avoided.

Southport is served by three wells which tap the tertiary system aquifer. The wells are nearly 175 feet in total depth and collectively yield 700 GPM. It is suspected that these wells are now beginning to exhibit a quality problem related tc salt water encroachment; and, hence, deserve close quality monitoring. To date quantity of water is not a problem and with future reasonable use should not present a problem.

In summary, the aquifers of significance are the post-miocene and tertiary system aquifer. Past man-made activities are suspected to have resulted in quality problems in both aquifers. It is vital that future activities avoid additional quality impairment. Quantity of ground water is not now a problem and future quantity problems are not anticipated, assuming reasonable use. Southport's impending use of central supplies precludes a lengthy discussion on future water planning."

b. Fragile Areas

Coastal Wetlands

Coastal wetlands are defined as "any salt marsh or other marsh subject to regular or occasional flooding by tides, including wind tides (whether or not the tide waters reach the marshland areas through natural or artificial watercourses), provided this shall not include hurricane or tropical storm tides. (See map; Fragile Areas) Coastal wetlands may be considered in two categories: low tidal marshland serves as a critical component in the coastal ecosystem. The marsh is the basis for the high net yield system of the estuary through the production of organ detritus (partially decomposed plant material) which is the prime input source for the food chain of the entire estuarine system. In addition, the roots and rhizomes of the Spartina alterniflora serve as waterfowl food and the stems as wildlife nesting material. Low tidal marsh also serves as the first line of defense in retarding shoreline erosion. Other coastal marshland contributes to the detritu supply and provides quality wildlife and waterfowl habitat depending on the biological and physical conditions of the marsh.*

Most of the wetlands in Brunswick County are of the bog type and support good habitat for wildlife. The marsh near Southport provides good clapper rail shooting but public hunting opportunities for waterfowl in general are poor. Most waterfowl hunting is done on private property along the Cape Fear River. Except for a few marsh areas along the Cape Fear River and the coast and some swamp in the Waccamaw and Cape Fear river basins, the development potential for waterfowl in the county is poor.**

Source: SCS An Appraisal of Potentials for Outdoor Recreational Development.

* Coastal Resources Commission, "State Guidelines for Local Planning . . January 27, 1975 P. 49-51

** Kenneth A. Wilson, N. C. Wetlands, Their Distribution and Management, Wildlife Resources Commission, Raleigh-April, 1962, P. 43

Protection of wetland areas requires the proper control of man's activities to prevent disturbing significantly the terrain and impairing the quality of the wetland area. Alteration in quantity or quality of the natural flow of water, which nourishes the ecosystem, should be minimized.

Estuarine Waters

Estuarine waters are defined in G.S. 113-229 (n)(2) as, "all the water of the Atlantic Ocean within the boundary of North Carolina and all the waters of the sounds, rivers, and tributaries thereto seaward of the dividing line between coastal fishing waters and inland fishing waters, as set forth in an agreement adopted by the Wildlife Resources Commission and the Department of Conservation and Development filed with the Secretary of State entitled "Boundary Lines, North Carolina Commercial Fishing - Inland Fishing Waters, revised March 1, 1965."

Estuaries are among the most productive natural environments of North Carolina. They not only support valuable commercial and sports fisheries, but are also utilized for commercial navigation, recreation, and aesthetic purposes. Species dependent upon estuaries such as menhaden, shrimp, flounder, oysters and crabs make up over 90% of the total value of North Carolina's commercial catch. These species must spend all or some part of their life cycle in the estuary. The high level of commercial and sport fisheries and the aesthetic appeal of Coastal North Carolina is dependent upon the protection and sustained quality of our estuarine areas. *

Areas Containing Unique Geological Formations

These are places that contain surface or near surface formations that are either themselves unique or are especially unusual or notable examples of geologic formations or processes in the coastal area. The formations are tentatively identified as "Carolina Bays" and are a much discussed feature of the Coastal Plain.

The large area north of the new Southport Primary School displays characteristics of the Carolina Bay formation while the small ones to the south are somewhat lacking in characteristics associated with Carolina Bays. Throughout Brunswick County there are depressions which resemble Carolina Bays but lack some of the essential characteristics. **

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* Coastal Resources Commission, "State Guidelines for Local Planning . . ."

** Mr. Maynard Owens, SCS telephone conversation, October 9, 1975.

Carolina Bays are shallow elliptical depressions, some occupied by lakes and there is disagreement as to their origin--meteorite scars or solution depression.

Historic Sites

Of the historic sites listed on the next two pages, only Fort Johnston is recognized in the National Register of Historic Places. All the other sites should be considered as potential historic sites in the future.

Public Trust Areas

Areas such as waterways and lands under or flowed by tidal waters or navigable waters, to which the public may have rights of access or public trust rights and areas which the State of North Carolina may be authorized to preserve, conserve, or protect under Article XIV, Section 5, of the North Carolina Constitution.

Other Fragile Areas

The Southport planning area contains other fragile areas such as wooded swamps and prime wildlife habitats particularly along Dutchman Cottage and Prices Creek. One notable scenic area is along the Cape Fear River west bank.

c. Areas with Resource Potential

Areas with resource potential incluce productive and unique agricultural lands; potentially valuable mineral sites; publicly owned forests, parks, fish and game lands, and other nonintensive outdoor recreation lands; and privately owned wildlife sanctuaries.

There are no known areas of resource potential in the Southport planning area.

Potential Historic Sites

1 Arrington House (architecture)
location - Atlantic Avenue and Bay Street
description - unknown date - considered haunted
present use - private residence

2 Fort Johnston-The Garrison (architecture, military)
location - Bay Street
description - The Garrison housed his majesty's troops from 1745-1764; burned by Whigs 1775, rebuilt in 1794-1809
present use - residence of commanding officer of Sunny Point

3 St. Phillips Espicopal Church (architecture, religion)
location - Courthouse Square
description - first established in Brunswick Town in 1754; present structure was erected in 1851; original furnishings are in evidence

4 Old Southport Cemetery
location - Moore Street
description - dates from 1760
present use - Southport landmark

5 Frying Pan Lightship
location - foot of Howe Street
description - ship guarded Fry Pan Shoals; built in 1929, replaced in 1964 by light tower, given to Southport by United States Coast Guard
present use - navigational museum

6 Brunswick County Courthouse
location - Courthouse Square on Moore Street
description - third location but not the last, erected in 1842

7 Whittler's Bench
location - foot of Howe Street
description - originally a Lombardy Poplar and two ancient gnarled cedars formed popular shady spot for sailors and townspeople to congregate.

8 Old Thompson House
location - Bay Street
description - example of widow's watch used to scan horizon for returning ships or planning voyages; once owned by Captain Thomas M. Thompson, who collected treasures from over the world; he was also famous Civil War blockage runner
present use - private residence

POTENTIAL HISTORIC SITES

SOUTHPORT

NORTH CAROLINA

9 Franklin Square-"The Grove"
location - Howe Street
description - land bequeathed to town by Governor Benjamin Smith for educational, fraternal, religious, and recreational purposes; contains an old hand water pump

9 City Hall
description - stately colonial structure looks out upon Franklin Square; built in 1904 by Masonic Lodge; it has functioned as a school, American Legion Hut, community center and now seat of Town Government.

9 "Four Sisters"
description - a rare arrangement of canopying giant live oaks hundreds of years old, directly behind City Hall

10 Prices Creek Lighthouse
location - 2 miles north of Southport on Cape Fear River
description - brick ruins largely intact built in 1851 as a range light, taken over by South in 1861 used as telegraph signal station; after Civil War abandoned; Pfizer, Inc. plans to restore.

11 Price-Davis Family Cemetery
location - West Street behind First Apostolic Church
description - secluded old burying ground

12 Indian Trail Tree-Keziah Park
location - corner of Moore and Lord Streets
description - ancient and gnarled live oak is estimated to be over 800 years old; Believed that Indians bent this tree marking route to fishing grounds reported in Ripley's Believe it or Not; Named in honor of W. B. Keziah known as "Mr. Chamber of Commerce."

13 Old Southport Hospital
location - Atlantic Avenue and West Street
description - moved from N. Bay Street sometime after Civil War; used as first real hospital reported to be the oldest remaining building in Southport prior to 1790's
present use - private residence

14 Bonnet's Creek
location - E. Moore Street
description - Stede Bonnet, supposedly "Gentleman Pirate" hid his vessel The Royal James, here; Bonnet's lady love lived in Southport; she reportedly buried her diary here; this controversial pirate was captured November 8, 1718 by Colonel William Rhett, and died on the gallows with a handful of followers in Charleston, South Carolina

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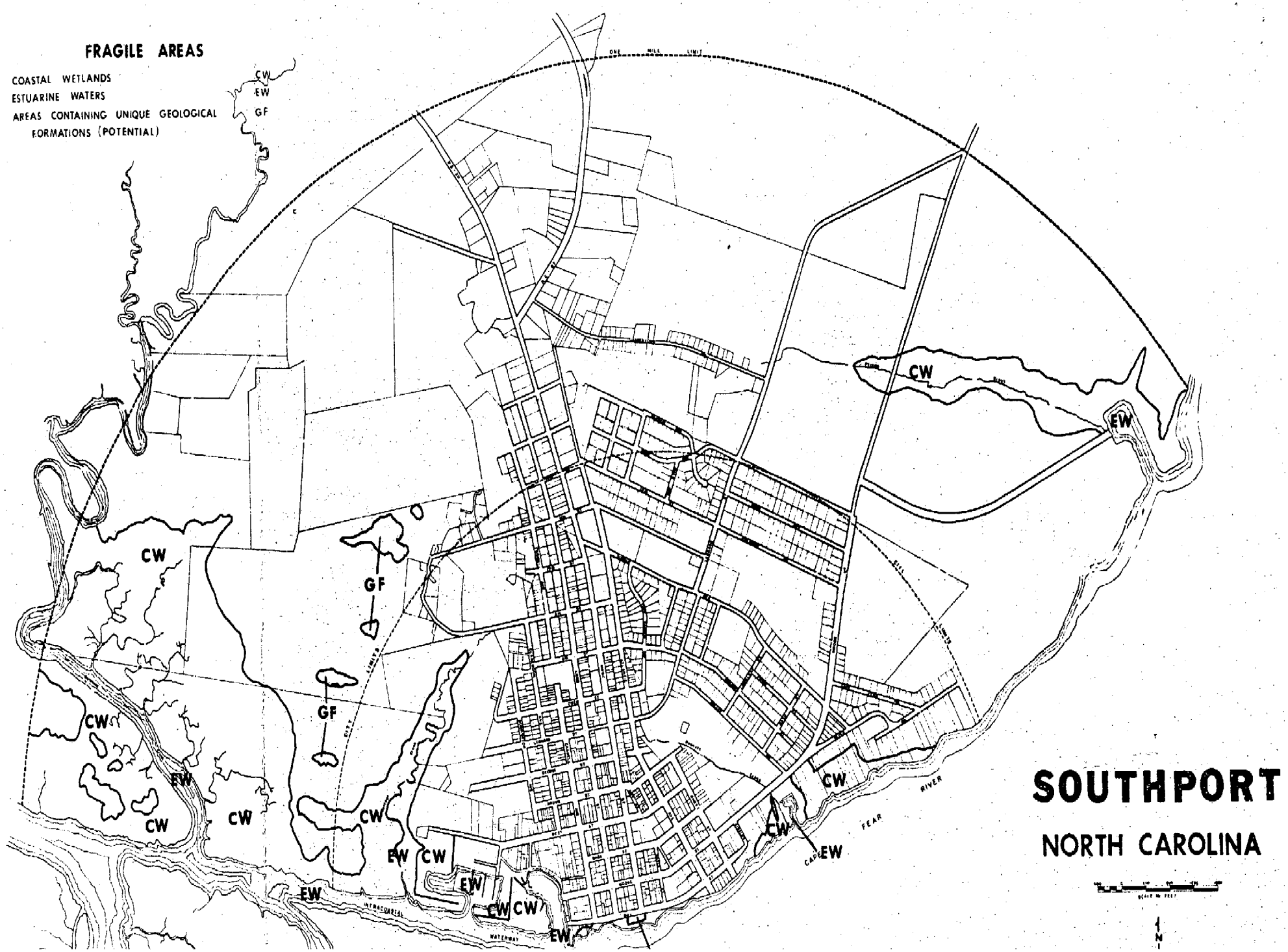
Source: North Carolina Division of Archives and History County Historic Site Inventory; Brunswick County Historic Society; The Bald Head Island Gazette, M. A. Page; "Southport Scenic Driving Town" 1975


FRAGILE AREAS
COASTAL WETLANDS
ESTUARINE WATERS
AREAS CONTAINING UNIQUE GEOLOGICAL FORMATIONS (POTENTIAL)
CW
EW
GF
ONE MILE LIMIT
CAPE FEAR RIVER
INTRACOASTAL WATERWAY
SOUTHPORT
NORTH CAROLINA
N

Section 2: Capacity of Community Facilities

Water System

Southport is served by three wells which tap the Tertiary System Aquifer. The wells are nearly 175 feet in total depth and collectively yield 700 gallons per minute. Conceivably this system could provide 504,000 gallons per day (12-hour demand). From January 1974 to July 1974, the average water used was approximately 218,206 gallons per day. Thus, the water system is presently operating at 43 percent capacity. However, there are many other factors to consider before determining excess capacity. Nevertheless, 25 percent more of capacity could be utilized and still provide a very reasonable safety factor.

For a discussion of water quality and future planning needs, see the section entitled "Hydrogeology", in this report. For an identification of water service area including expansion consult the Community Facilities Plan* and Proposed Water and Sewer System Extension.**

Sewer System

Southport's wastewater treatment plant has a designed capacity of 300,000 gallons per day. The average monthly flow was 130,000 gallons per day in August, 1974. It is anticipated that the proposed sewer extension will generate an additional 146,000 gallons per day, thus, producing a total of 276,000 gallons per day.*** Estimated monthly flow is 175 to 200 thousand

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* Department of Natural and Economic Resources, Division of Community Assistance, Community Facilities Plan, Southport, N. C. March, 1974 p. 8

** Henry von Oesen and Associates, Proposed Water and Sewer System Extension, Southport, N. C. 1972

*** F. Tyndall Lewis, Regional Engineer in a memorandum to Engineering Branch, Env. Mgt. Div., approving sewer line construction August 2, 1974.

gallons per day in September, 1975, with construction roughly 60 percent complete.* Therefore, once sewer extension is complete the wastewater treatment plant will be operating at approximately 92 percent capacity.

For a discussion of future planning needs, and identification of sewer service area including expansion consult the Community Facilities Plan and Proposed Water and Sewer System Extension.**

Thoroughfares

According to the Highway Capacity Manual,*** the practical capacity for two lanes plus parking for two way traffic is 5,700-8,200 vehicles per day. Capacity is defined as the maximum number of vehicles which has a reasonable expectation of passing over a given section of a lane or a roadway in both directions during a given time period under prevailing roadway and traffic conditions. Based on this standard, the only thoroughfare in the Southport Planning area which warrants improvement is North Howe Street at the city limits. This street is on the State Highway System (G.S. 136 - Article 3A) and in 1974 had an average daily traffic count of 8850 vehicles per day. However, there are other factors (i.e. design, cost, traffic generators, accident frequency origin-destination studies, etc.) besides capacity analysis which must be considered before alterations are made.

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* Southeastern Field Office, Env. Mgt. Div. Wilmington, N. C.

** Department of Natural and Economic Resources Community Facilities Plan p. 10/Henry von Oesen, Proposed Water and Sewer System Extension

*** Highway Research Board, Highway Capacity Manual, Special Report 87, 1965.

Educational Facilities

There are three educational facilities administered by the Brunswick County Board of Education which serve the Southport Planning Area. The City of Southport actually has little or no authority with regard to school policies. The three facilities are:

Southport Primary K-4
Design capacity: 600 pupils
1974-75 enrollment (last day): 487
Pupil/Teacher ratio: 21:1
Future plans: K-5 grade with the addition of 8 classrooms

Southport Middle School 5-8
Design capacity: 500 pupils
1974-75 enrollment (last day): 493
Pupil/Teacher ratio: 27:1
Future plans: 6-8 grade with the construction of a new junior school

South Brunswick High School 9-12 (located in Boiling Springs Lake, N. C.)
Design Capacity: 750 pupils
1974-75 enrollment (last day): 636
Pupil/Teacher ratio: 28:1
Future plans: construction of additional shop facilities.

Article V - Estimated Demand

Section 1: Population and Economy

In order to better understand population projections and population change, historic population and current estimates are summarized below. Population change is the result of birth, deaths and migration. Migration is the most difficult variable to predict because it is subject to so many outside factors.

Under the historic population count we see that the City of Southport's percent increase from 1930 to 1970 has been less than either Smithville Township or Brunswick County. It should also be noted that Southport from 1930 to 1970 has represented an average 9.8 percent of the County's total population.

The two basic sources of regional population projections are the OBERs Series E projections, which uses projected economic growth to account for the regional distribution of population, and North Carolina Population Projection Model, which is based upon births, deaths, and observed trends (1970-73) in migration. The OBERs Series E data are disaggregated from larger multicounty Bureau of Economic Analysis economic areas. The 1973 adjusted trend projections are adjustments of the previous trend projections based on a comparison of observed migration from 1970-73 with predicted migration.

Due to Southport's small size and lack of a data base, it is more accurate to discuss population changes at the county level. Brunswick

County has grown very rapidly since 1970 because of several large construction jobs around Southport. The beach areas have contributed to this growth also. Continuation of this growth, without further economic development, is doubtful because construction workers are very mobile and will probably move on when the projects are completed. Although outmigration will occur, it is not likely to continue to 1980 because the Wilmington SMSA which includes Brunswick County is growing. It is likely that attendant development resulting from major projects will cause the population in Southport and Brunswick County to level off slightly higher in 1980 than at present. Therefore, the most accurate projection appears to be the 1973 Adjusted Trend for 1980, 1990 and 2000. Consequently, most of the population growth expected between 1970 and 1980 has already occurred.

The economic boom that has engulfed Southport and Brunswick County has begun to level off. According to two economic indicators such as personal income and employment characteristics Brunswick County has improved but still lags behind the state in most cases. Since November 1974, the unemployment rate has continued to increase: January 1975 - 12.1%; May 1975 - 12.7%; and August 1975 - 14.8%.* Projecting future economic conditions is a most difficult task, since many factors are dependent upon the national economy and are beyond the control of the local decision makers.

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* N. C. Employment Security Commission

HISTORIC POPULATION

	Ave. Percent of County 1930-70	1930	1940	Percent Change 1930-40	1950	Percent Change 1940-50	1960	Percent Change 1950-60	1970	Percent Change 1960-70	Percent Change 1930-70
Southport*	9.8	1,760	1,760	0	1,748	-.7	2,034	16.3	2,220	9.1	26.1
Smithville Twp.	17.0	2,912	2,936	.8	2,873	-2	3,355	16.7	4,346	29.5	49.2
Brunswick Co.		15,818	17,125	8	19,238	12.3	20,278	5.4	24,223	19.4	41.4

Source: U.S. Dept. of Commerce 1950, 1960, 1970 U.S. Census of Population

AVERAGE PERMANENT RESIDENT POPULATION

	1973[1]	1974[1]	1975
Southport*	2,730	2,900	N/A[2]
Brunswick County	29,800	31,900	35,621[3]

* City Only

1 As of July 1 according to N.C. Dept. of Administration, OSP

2 Not available because of small data base

3 As of January 1 according to Brunswick County Planning Dept.

POPULATION PROJECTION

	1980	1985	1990	2000
Southport*				
OBER Series E	3,038	3,445	3,851	4,508
1973 Adjusted Trend	3,136	3,641	4,145	5,341
Brunswick County				
OBER Series E	31,000	35,150	39,300	46,000
1973 Adjusted Trend	32,000	37,150	42,300	54,600
Brunswick Co. Planning Dept.	41,914	52,583	61,199	83,768

* City only

Source: U.S. Dept. of Commerce, Bureau of Economic Analysis
N.C. Dept. of Administration, OSP
Brunswick County Planning Dept.

However, there are some key economic indicators which have been projected by the U. S. Dept. of Commerce, Bureau of Economic Analysis by regions.* In any event there are assumptions made, which if proved erroneous, could render the outcome totally invalid. If we apply the 1970 percent of county population of total regional population to regional employment, we arrive at a county projected employment.

Year	1980	1990	2000
Total Employment	9,249	11,787	13,324

If we apply the population projections discussed earlier to the projected Total County personal income, we arrive at projected per capita personal income for Brunswick County:

Year	1980	1990	2000
Population	32,000	39,300	46,000
Total County Personal Income	$92,158	$142,438	$222,568
Per Capita Personal Income	$ 2,880	$ 3,624	$ 4,838

Per capita personal income is all money earned divided by every man, woman, and child. Naturally, this is below the average family or household income. Unfortunately, these projections are based on data which has occurred between 1950, 1960 and 1970 and do not in any way reflect what has occurred since 1970. We have every reason to believe that the local economy is in better shape than indicated by these two factors.

Section 2: Future Land Use Needs

The existing patterns of development were analyzed under the section

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* N. C. Dept. of Administration, Office of State Budget, Statistical Abstract, pg. 207 1973

entitled "Existing Land Use" in this report. However, a brief summary of those findings and a comparison to the April 1968, Land Use Analysis where appropriate will be beneficial to understanding future land needs.

Land Use

Category	Within Corporate Limits Approximate 1974 Acreage	1968 Acreage
1. Residential	360.0	200
2. Commercial	22.4	11
3. Industrial	1.6	2
4. Transportation, Communication and Utilities	186.0	125
5. Government & Institutional	69.5	45
6. Cultural, Entertainment & Recreational	3.2	2
Subtotal Developed	642.7	387
7. Agriculture* & Forestland	235.5	
8. Wetlands	244.0	
9. Undeveloped	120.0	
Total	1242.2	

Comparisons for the last three categories are inappropriate because of dissimilar categories and differences in interpretations. Since residential land use is the largest category, it deserves special review. As one can readily see this land use increased 80 percent from 1968 to 1974. Reasons for this astounding increase have already been identified. Yet it is

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* Included in forestland due to photo data

Source: 1974 Land Use Information
Soil Conservation Service aerial photos (2/4/72)
N. C. DNER, DCA Windshield Survey (12/74) dwelling units 779
N. C. DOT Aerial Photos (12/18/74)
1968 Land Use Information
N. C. DNER, DCA Land Use Analysis, Southport, N. C. 1968 p. 62

probable that this increase will not continue. There are several methods for forecasting future acreage requirements for new residential construction, all of which have basic assumptions but normally employ the family or household as the key element.* For the City of Southport, the number of new dwelling units needed in 1985 is 161.3 (1974-1985 population increase of 600 persons divided by 3.72 persons per dwelling unit). New dwelling units needed is converted to an acreage requirement of 74.2 acres (new dwelling units divided by 2.16 dwelling units per residential acre in 1974). This method involves assumptions as to a constant household size, stable vacancy rate and no losses in existing stock of dwelling units from demolition, fire or other catastrophes. Because of this and the fact that the method does not provide flexibility for the location of additional employment generators, a safety factor of 25 percent is added to produce a total residential acreage need in 1985 of 92.8 acres.

Due to a lack of pertinent data and a small amount of acres in the other land use categories, acreage requirements are determined below by dividing projected population growth (600 persons) by persons per acre in 1974.

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* F. Stuart Chapin Urban Land Use Planning, University of Illinois Press, Urbana 1965 pg. 423

Land Use Needs

Category	Within Corporate Limits 1974 Acreage	Approximate Persons per acre	1985 Acreage Requirement**
1. Residential	360.0	8.1	74.1
2. Commercial	22.4	129.5	4.6
3. Industrial	1.6	181.3	3.3
4. Transportation, Communication and Utilities	186.0	15.6	38.4
5. Government & Institutional	69.5	41.7	14.3
6. Cultural, Entertainment & Recreational	3.2	906.3	.6
Subtotal Developed	642.7	4.5	Total 135.3
7. Agriculture* & Forestland	235.5		plus 25% safety
8. Wetlands	244.0		factor = Total 169.0
9. Undeveloped	120.0		
Total	1242.2	2.3	

* Included in forestland due to photo date

** Does not include safety factor

Source: Land Use Information
Soil Conservation Service aerial photos (2/4/72)
N. C. DNER, DCA Windshield Survey (12/74)
N. C. DOT Aerial Photos (12/18/74)

Total acres required to accomodate development in 1985 is 135.3 acres. If a safety factor of 25 percent is added then, the total acres needed to accomodate all land uses resulting from new growth in 1985 is 169.1 acres.

Section 3: Community Facilities Demand

TEN-YEAR PUBLIC IMPROVEMENTS PROGRAM FOR SOUTHPORT*

The Public Improvements Program for the City of Southport includes only the public improvements for which the city is directly responsible and which must be provided for in the City's Capital Improvements Budget.

PUBLIC IMPROVEMENTS PROJECTS FOR FISCAL 1974-1979

Improvement Items	Justification
1. Remodel present city hall to provide adequate office space and paint the exterior of the building.	1. This would provide adequate office space for the town administrative functions without the need to expand the existing structure.
2. Complete extensions of the water distribution system as recommended by the water and sewer system planning report.	2. This would provide an adequate water system to the city for the next twenty years. It would also serve the new junior high school and the small boat harbor.
3. Complete extensions of the sewer system and increase the capacity of the sewage treatment plant.	3. This would provide an adequate sewage system meeting federal and state requirements for the projected growth of the community in the next twenty years.
4. Acquire sufficient land for a civic center complex adjacent to the new junior high school site.	4. As a recreational and resort area, the city is in need of a facility to house large groups and to provide recreational and cultural activities.
5. Purchase the land adjacent to the fishing pier to provide a picnic and open space area on the waterfront.	5. This would complete the second phase of this federally funded program. Federal monies have already been appropriated for this acquisition.
6. Purchase a new utility truck for the volunteer fire department and the necessary safety equipment needed.	6. This is done to insure dependable, safe, and low maintenance transportation.
7. Replace street, water, and sewer department equipment on a staggered time basis at five year intervals.	7. This heavy equipment should be replaced on a regular basis to insure low maintenance and high performance.

* N.C. Department of Natural and Economic Resources, Division of Community Assistance Community Facilities Plan Southport, N. C. March, 1974.

Improvement Items	Justification
8. Purchase a new bucket truck for the electrical department.	8. This vehicle is now ten years old. To insure dependable service and low maintenance, it should be replaced every five years.
9. Purchase new patrol vehicles for the Police Department every two years.	9. This is done to insure dependable, safe and low maintenance transportation. Additionally, this would be a predicable and easily planned for expense.

PUBLIC IMPROVEMENTS PROJECT FOR FISCAL 1979-1984

Improvement Items	Justification
1. Acquire sufficient land at the end of Willis Drive to develop a riverside park.	1. This site would protect a small portion of the riverfront area and provide recreational facilities to the residents of Southport and to the many tourist that visit the area.
2. Purchase new patrol vehicles at a two year interval.	2. Same as #9 under Fiscal Years 1974-1979.
3. Purchase new street, water and sewer department equipment on a staggered basis at five year intervals.	3. Same as #7 under Fiscal Years 1974-1979.
4. Pave the parking area of the town garage and provide sufficient buffers to shield the adjoining areas.	4. This is needed for the overall protection of the stored vehicles and to shield the adjacent property from the activities and storage facilities of the area.
5. Pave the existing parking facilities adjacent to City Hall and mark off spaces.	5. This would provide an adequate parking area and would prevent haphazard parking arrangements.
6. Construct a new fire station with room for expansion and proper maintenance of equipment.	6. The present fire station has no room for expansion or for additional equipment and the present facilities are inadequate for maintenance of equipment and training.
7. Purchase foam equipment for the Fire Department.	7. This would provide better fire protection to the city and expand their present service.

Table 1

CAPITAL IMPROVEMENTS PROGRAM FISCAL YEAR 1974-1975 THROUGH FISCAL YEAR 1978-1979

Departments and Projects	Total Cost	Assistance	Assistance	Bonds	General Revenue Sharing	Current Revenue	1974-1975	1975-1976	1976-1977	1977-1978	1978-1979
Fire Department											
10 H.P. Fire Siren	$ 3,000	$ 1,600	$			$ 1,600	$ 3,300				
1,000 ft. of Double Jacket 2 1/2 inch fire hose	$ 1,900					$ 1,900	$ 1,900				
Rescue Equipment	$ 2,500					$ 2,500		$ 2,500			
1 Utility Truck	$ 4,200					$ 4,200		$ 4,200			
Police Department											
7 new automobiles normal replacement	$ 24,500					$ 24,500	$ 3,500	$ 7,500	$ 3,500	$ 7,000	$ 3,500
City Administration											
City Hall Remodeling	$ 10,000				$10,000		$ 5,000	$ 5,000			
Water System											
Water Line Extension	$ 197,000	$132,000		$ 65,000			$197,000				
Sewer System											
Extension of Lines and Upgrading Treatment Plant	$ 646,000	$276,000		$370,000			$646,000				

Table 1 Cont'd.

CAPITAL IMPROVEMENTS PROGRAM FISCAL YEAR 1974-1975 THROUGH FISCAL YEAR 1978-1979

Departments and Projects	Total Cost	Federal Assistance	State Assistance	Bonds	General Revenue Sharing	Current Revenue	1974-1975	1975-1976	1976-1977	1977-1978	1978-1979
Sanitation Department											
1 new Packer	$ 12,000					$ 12,000		$12,000			
Electric Department											
1 Pickup Truck	$ 4,200					$ 4,200			$ 4,200		
1 Bucket Truck	$ 18,500					$ 18,500	$ 18,500				
Streets Department											
2 2-ton Trucks	$ 12,200					$ 12,200	$ 6,100	$ 6,100			
1 1/2-ton Pickup Truck	$ 4,200					$ 4,200	$ 4,200	$			
1 3/4-ton Pickup Truck	$ 7,000					$ 7,000				$ 7,000	
1 Street Sweeper	$ 15,000					$ 15,000			$ 15,000		
Recreation											
Water Front Park Land Acquisition	$ 27,500	$ 3,750			$23,750			$ 7,500	$10,000	$ 10,000	
Civic Center Complex	$ 240,000	$200,000	$40,000					$40,000	$111,500	$ 10,000 $111,500	
Total	$1,230,000	$613,350	$40,000	$435,000	$33,750	$107,000	$885,400	$84,300	$144,200	$135,500	$ 3,500

Furthermore, while it is not considered a capital improvement item, the city will have to consider the employment of a full time fireman due to projected growth. This will also permit the City to gain a lower class fire rating (#7) which will bring about a reduction in fire insurance rates.

Article VI - Plan Implementation

Prior to 1974, local land use plans were purely advisory in nature. Local governments often adopted comprehensive plans and then proceeded to ignore them by zoning land and building facilities in a manner inconsistent with the plan. Under the Coastal Area Management Act of 1974 the development of land use plans is just the initial phase of the coastal area management program, for this is a continuing process calling for periodic review (at least once after five years) and revision to keep the plan current, and for management of other governmental actions in a manner consistent with the plans.

The law requires each town desiring to develop its own implementation and enforcement plan to identify a "designated local official" to review, process and issue permits in Areas of Environmental Concern.

While regulations called for in the act relate only to permit authority affecting designated Areas of Environmental Concern, the permits need to be coordinated with both the local land use plan and other existing regulations. The really crucial part of the program will be to see if the local plans can be effectively used to guide government actions--by local, state, and federal agencies--within the local jurisdiction.

Section 1: Intergovernmental Coordination

In Southport there are two local units of government which provide services to the City and have authority to levy taxes. These two units are: the City of Southport and the County of Brunswick. Historically, counties have been responsible for software services (i.e., health, education and welfare) while municipalities were responsible for hardware services (i.e., water, sewer, streets and sanitation).

However with a changing demographic picture, both cities and counties have initiated services of both types. Coordination of services between Southport and Brunswick County are very few. However, agreements in several areas should be explored. Possible areas for joint services include recreation, wastewater treatment, historic district commission, water service, and housing rehabilitation. The degree to which any of these service agreements can be achieved will be determined by the cost involved. The cost in turn can be held to a minimum by land use control. Only Southport has authority to regulate the use of land outside AECs.

The City of Southport shall continue to coordinate all plans for its development with those of other governmental agencies.

Coordination in the development of the Land Use Plan between Brunswick County and Southport has been achieved through informal meetings by planning staff and by citizens through attendance at County Advisory Committee meetings.

Section 2: Land Classification System

The North Carolina Land Classification System contains five classes of land:

a. Developed--Lands where existing population density is moderate to high and where there are a variety of land uses which have the necessary public services.
b. Transition--Lands where local government plans to accommodate moderate to high density development during the following ten year period and where necessary public services will be provided to accommodate that growth.
c. Community--Lands where low density development is grouped in existing settlements or will occur in such settlements during the following ten year period and which will not require extensive public services now or in the future.
d. Rural--Lands whose highest use is for agriculture, forestry, mining, water supply, etc., based on their natural resources potential. Also,

lands for future needs not currently recognized.

e. Conservation--Fragile, hazard and other lands necessary to maintain a healthy natural environment and necessary to provide for the public health, safety or welfare.

These five classes provide a framework to be used by the City to identify the general use of all lands within the corporate limits. Such a system presents an opportunity for Southport to provide for its needs as well as to consider those of the whole state. Also, it is a statement of policy on where and to what density we want growth to occur, and where we want to conserve the City's natural resources by guiding growth.

Applying this system to Southport as shown on the accompanying map, land falls into four categories: Conservation, Developed, Transition, and Rural. Conservation represents all land identified as AECs and where soil conditions will not support development. Developed land is the area within city limits which presently have the necessary public services.

Since an objective as stated in the section "Objectives and Policies for Dealing with Issues" is to encourage development within the existing corporate limits and avoid urban sprawl, then it is reasonable to hope that a percentage of the new growth occur in the Developed Land Class (where water and sewer service is, and the density is 4.5 persons per acre using just the developed acres). How much should occur and would occur is debatable. Undeveloped land within the city limits accounts for 120 acres. Fifty percent of this land should be used for new growth ---- 109 acres remains to be accommodated, most likely in the extraterritorial area. Consequently, the Transition Land Class is allocated the 109 acres beyond the city limits near areas already developed.

Thus, Transition includes land that will be provided water and sewer service within the next ten years. The remainder of the land area is classified as Rural for future land needs not currently recognized.

Land Classification Map

Section 3: Areas of Environmental Concern

1.0 Coastal Wetlands - General

Coastal wetlands are defined as "any salt marsh or other marsh subject to regular or occasional flooding by tides, including wind tides (whether or not the tide waters reach the marshland areas through natural or artificial watercourses), provided this shall not include hurricane or tropical storm tides. Salt marshland or other marsh shall be those areas upon which grow some, but not necessarily all, of the following salt marsh and marsh plant species: Smooth or salt water Cordgrass (Spartina alterniflora); Black Needlerush (Juncus roemerianus); Glasswort (Salicornia spp.); Salt Grass (Distichlis Spicata); Sea Lavender (Limonium spp.); Bulrush (Scirpus spp.); Saw Grass (Cladium Jamaicense); Cat-Tail (Typha spp.); Salt-Meadow Grass (Spartina Patens); and Salt Reed Grass (Spartina cynosuroides)." Included in this statutory definition of wetlands is "such contiguous land as the Secretary of NER reasonably deems necessary to affect by any such order in carrying out the purposes of this Section." (G.S. 113-230 (a))

For policy purposes, coastal wetlands may be considered in two categories: (1) low tidal marsh; (2) other coastal marshlands which have different significance and policy implications.

1.1 Coastal Wetlands - Low Tidal Marshland

a. Description. Defined as marshland consisting primarily of Spartina alterniflora and usually subject to inundation by the normal rise and fall of lunar tides.

b. Significance. Low tidal marshland serves as a critical component in the coastal ecosystem. The marsh is the basis for the high net yield system of the estuary through the production of organic detritus (partially decomposed plant material) which is the primary input source for the food chain of the entire estuarine system, Estuarine dependent species of fish and shellfish such as menhaden, shrimp, flounder, oysters and crabs currently make up over 90 percent of the total value of North Carolina's commercial catch.

In addition, the roots and rhizomes of the Spartina alterniflora serve as waterfowl food and the stems as wildlife nesting material. Low tidal marsh also serves as the first line of defense in retarding shoreline erosion. The plant stems and leaves tend to dissipate wave action while the vast network of roots resists soil erosion. Marshes of this type operate additionally as traps for sediment originating from upland runoff thus reducing siltation of the estuarine bottoms and consequent detriment to marine organisms.

c. Policy Objective. To give the highest priority to the preservation of low tidal marshland.

d. Appropriate Land Uses. Appropriate land uses shall be those consistent with the above policy objective. These marshes should be considered unsuitable for all development which will alter their natural functions. Inappropriate land uses include, but are not limited to the following examples: restaurants and businesses; residences, apartments, motels, hotels, and trailer parks; parking lots and offices; spoil and dump sites; wastewater lagoons; public and private roads and highways; and factories. Examples of acceptable land uses may include utility easements, fishing piers, docks,

certain agricultural uses except when excavation or filling affecting estuarine or navigable waters is involved, and such other uses which do not significantly alter the natural functions of the marsh.

1.2 Coastal Wetlands - Other Coastal Marshland

a. Description. All other marshland which is not low tidal marshland and which contains the species of vegetation as listed in the first paragraph under Section 1.0 on page 51.

b. Significance. This marshland type also contributes to the detritus supply necessary to the highly productive estuarine system essential to North Carolina's economically valuable commercial and sports fisheries.

The higher marsh types offer quality wildlife and waterfowl habitat depending on the biological and physical conditions of the marsh. The vegetative diversity in the higher marshes usually supports a greater diversity of wildlife types than the limited habitat of the low tidal marsh. This marshland type also serves as an important deterrent to shoreline erosion especially in those marshes containing heavily rooted species. The dense system of rhizomes and roots of Juncus roemerianus are highly resistant to erosion. In addition, the higher marshes are effective sediment traps.

c. Policy Objective. To give a high priority to the preservation and management of the marsh so as to safeguard and perpetuate their biological, economic and aesthetic values.

d. Appropriate Land Uses. Appropriate land uses shall be those consistent with the above policy objective. Highest priority shall be allocated to the conservation of existing marshlands. Second priority for land uses allocation of this type shall be given to development which requires water access and cannot function anywhere

else, such as ports, docks and marinas, provided that the actual location of such facilities within the marsh consider coastal, physical and biological systems and further provided that feasible alternatives regarding location and design have been adequately considered and need for such development can be demonstrated. Such allocation may only be justified by the projected land use demands and by community development objectives, but in no case shall the allocation exceed the capacity of the marshland system to sustain losses without harm to the estuarine ecosystem unless the losses would be offset by a clear and substantial benefit to the public.

2.0 Estuarine Waters

a. Description. Estuarine waters are defined in G.S. 113-229 (n) (2) as, "all the water of the Atlantic Ocean within the boundary of North Carolina and all the waters of the bays, sounds, rivers, and tributaries thereto seaward of the dividing line between coastal fishing waters and inland fishing waters, as set forth in an agreement adopted by the Wildlife Resources Commission and the Department of Conservation and Development filed with the Secretary of State entitled 'Boundary Lines, North Carolina Commercial Fishing-Inland Fishing Waters, revised March 1, 1965,'" or as it may be subsequently revised by the Legislature.

b. Significance. Estuaries are among the most productive natural environments of North Carolina. They not only spport valuable commercial and sports fisheries, but are also utilized for commercial navigation, recreation, and aesthetic purposes. Species dependent upon estuaries such as menhaden, shrimp, flounder, oysters and crabs make up over 90 percent of the total value of North

Carolina's commercial catch. These species must spend all or some part of their life cycle in the estuary. The high level of commercial and sports fisheries and the aesthetic appeal of coastal North Carolina is dependent upon the protection and sustained quality of our estuarine areas.

c. Policy Objective. To preserve and manage estuarine waters so as to safeguard and perpetuate their biological, economic and aesthetic values.

d. Appropriate Uses. Appropriate uses shall be those consistent with the above policy objective. Highest priority shall be allocated to the conservation of estuarine waters. The development of navigational channels, the use of bulkheads to prevent erosion, and the building of piers or wharfs where no other feasible alternative exists are examples of land uses appropriate within estuarine waters, provided that such land uses will not be deterimental to the biological and physical estuarine functions and public trust rights. Projects which would directly or indirectly block or impair existing navigation channels, increase shoreline erosion, deposit spoils below mean high tide, cause adverse water circulation patterns, violate water quality standards, or cause degradation of shellfish waters are generally considered incompatible with the management of estuarine waters.

4.4 Fragile, Historic or Natural Resource Areas - Areas Containing Unique Geological Formations

a. Description. Areas containing unique geological formations will be identified by the State Geologist. These places contain surface or near surface formations that are either themselves unique

or are especially unusual or notable examples of geologic formations or processes in the coastal area.

b. Significance. Unique geological areas provide surface or near surface exposures of unique geologic formations or processes of the coastal area. They are important educational, scientific, or scenic resources that would be jecpardized by uncontrolled or incompatible development.

c. Policy Objective. To preserve the scientific, educational or scenic values of unique geological formations so that they may be available for future study and enjoyment.

d. Appropriate Land Uses. Appropriate land uses shall be those consistent with the above policy objective. Uses within areas containing unique geological formations shall be tailored to the particular unique qualities of the individual area.

4.5 Fragile, Historic or Natural Resource Areas - Historic Places

a. Description. Defined as historic places that are listed, or have been approved for listing by the North Carolina Historical Commission, in the National Register of Historic Places pursuant to the National Historic Preservation Act of 1966; historical, archaeological, and other places and properties owned, managed, or assisted by the State of North Carolina pursuant to G.S. 121; and properties or areas that are designated by the Secretary of the Interior as National Historic Landmarks.

b. Significance. Historic resources are both non-renewable and fragile. They owe their significance to their association with American history, architecture, archaeology, and culture. Properties on or approved for the National Register of Historic Places may be of national, state, or local significance.

c. Policy Objective. To protect and/or preserve the integrity of districts, sites, buildings, and objects in the above categories.

d. Appropriate Land Uses. Appropriate land uses shall be those consistent with the above stated policy objective. Land use which will result in substantial irreversible damage to the historic value of the area is inappropriate.

5.0 Areas Subject to Public Rights - General

Areas such as waterways and lands under or flowed by tidal waters or navigable waters, to which the public may have rights of access or public trust rights and areas which the State of North Carolina may be authorized to preserve, conserve, or protect under Article XIV, Section 5, of the North Carolina Constitution.

5.1 Areas Subject to Public Rights - Certain Public Trust Areas

a. Description. All waters of the Atlantic Ocean and the lands thereunder from the mean high water mark to the seaward limit of State jurisdiction; all natural bodies of water subject to measurable lunar tides and lands thereunder to the mean high water mark; all navigable natural bodies of water and lands thereunder to the mean high water mark or ordinary high water mark as the case may be, except privately owned lakes to which the public has no right of access; all waters in artificially created bodies of water in which exists significant public fishing resources or other public resources, which are accessible to the public by navigation from bodies of water in which the public has rights of navigation; all waters in artificially created bodies of water in which the public has acquired rights by prescription, custom, usage, dedication or any other means. In determining whether the public has acquired rights in artificially created bodies of water, the following factors shall be considered: (i) the use of the body of water by the public; (ii) the length of time the public has used the area; (iii) the value of public

resources in the body of water; (iv) whether the public resources in the body of water are mobile to the extent that they can move into natural bodies of water; (v) whether the creation of the artificial body of water required permission from the State; and (vi) the value of the body of water to the public for navigation from one public area to another public area.

For purposes of the description in 5.0 and 5.1, the following definitions shall apply:

(1) Mean High water Mark means the line on the shore established by the average of all high tides. It is established by survey based on available tidal datum. In the absence of such datum, the mean high water mark shall be determined by physical markings or comparison of the area in question with an area having similar physical characteristics for which tidal datum is readily available.

(2) Navigable means navigable-in-fact.

(3) Navigable-in-fact means capable of being navigated in its natural condition by the ordinary modes of navigation including modes of navigation used for recreational purposes. The natural condition of a body of water for purposes of determining navigability shall be the condition of the body of water at mean high water or ordinary high water as the case may be, and the condition of the body of water without man-made obstructions and without temporary natural obstructions. Temporary natural conditions such as water level fluctuation and temporary natural obstructions which do not permanently or totally prevent navigation do not make an otherwise navigable stream non-navigable.

(4) Ordinary High Water Mark means the natural or clear line impressed on the land adjacent to the waterbody. It may be established by erosion or other easily recognized characteristics such as shelving, change in the character of the soil, destruction of terrestrial vegetation or its inability to grow, the presence of litter and debris, or other appropriate means which consider the chracteristics of the surrounding area. The ordinary high water mark does not extend beyond the well defined banks of a river where such banks exist.

b. Significance. The public has rights in these waters including navigation and recreation. In addition, these waters support valuable commercial and sports fisheries, have aesthetic value, and are important potential resources for economic development.

c. Policy Objective. To protect public rights for navigation and recreation and to preserve and manage the public trust waters so as to safeguard and perpetuate their biological, economic and aesthetic value.

d. Appropriate Uses. Appropriate uses shall be those consistent with the above policy objective. Any land use which interferes with the public right of navigation, or other public trust rights, which the public may be found to have in these waters, shall not be allowed. The development of navigational channels, drainage ditches, the use of bulkheads to prevent erosion, and the building of piers or wharfs are examples of land uses appropriate within public trust waters provided that such land uses will not be detrimental to the biological and physical functions and public trust rights. Projects which would directly or indirectly block or impair existing navigation channels, increase shoreline erosion, deposit spoils below mean high tide, cause adverse water circulation patterns, violate water quality standards, or cause degradation of shellfish waters are generally considered incompatible with the management of public trust waters.

6.3 Natural Hazard Areas - Coastal Floodplains

a. Description. Coastal floodplain is defined as the land areas adjacent to coastal sounds, estuaries or the ocean which are prone to flooding from storms with an annual probability of one percent or greater (100 year storm). These areas are analogous to the 100 year floodplain on a river. Information necessary to identify these areas will be supplied by the State Geologist.

b. Significance. Coastal floodplains are those lands subject to flooding or wave action during severe storms or hurricanes. They are lands where uncontrolled, incompatible, or improperly

designed building, structures, facilities, and developments can unreasonably endanger life and property. Except for those portions of the areas lying within estuarine or ocean erodible areas, they are not generally or necessarily subject to severe erosion or dynamic action leading to replacement of the land with a body of water. In most instances, structures within this area do not obstruct the flow of waters or create any additional back waters.

c. Policy Objective. To ensure that all buildings, structures, facilities and developments are properly designed and built to maintain their stability, integrity, and safety in the event of flood surge from a 100 year storm.

d. Appropriate Land Uses. Appropriate land uses shall be those consistent with the above policy objective. It is reasonable to allow a certain degree of development if its is carefully controlled and meets stringent engineering standards for stability, integrity and safety during a 100 year storm. The land use plan may allow development activities, and if such development is undertaken, as a minimum it must conform with the standards of the Federal Insurance Administration for coastal high hazard areas and safety during the flood surge from a 100 year storm. (Code of Federal Regulations, Title 24, Chapter 10, Subchapter B)

7.0 Development Standards Applicable to All AECs

a. No development should be allowed in any AEC which would result in a contravention or violation of any rules, regulations, or laws of the State of North Carolina or of local government in which the development takes place.

b. No development should be allowed in any AEC which would have a substantial likelihood of causing pollution of the waters of the State to the extent that such waters would be closed to the taking of shellfish under standards set by the Commission for Health Services pursuant to G.S. 130-169.01.

Section 4: Location and Development Standards

These standards serve two purposes: as a basis for the Land Use Plan and as a guide to public officials and citizens for evaluating development proposals. These standards state where the various land uses should be located and how land should be developed for each land use.

Residential areas should:

-- have public water and sewer service within corporate limits.

-- have minimum lot sizes where community/public water and sewer service is unavailable - 20,000 square feet; if either water and sewer facilities are available but not both - 15,000 square feet.

-- be bound but not crossed by major thoroughfares.

-- construct utilities including electric and telephone lines underground, where the ground water table prohibits underground electric wires, utility poles should follow rear property lines.

-- not locate in flood prone areas or in the case of beach communities should be above minimum building elevation and flood proofed as determined by HUD - Federal Insurance Administration.

-- provide locations for churches, schools, recreation, and neighborhood serving stores near their center.

-- be buffered from other land uses.

Commercial areas should:

-- locate near intersections of major thoroughfares to better serve trade areas.

-- not be permitted to develop in strips, but rather in compact, grouped and consolidated into functional units.

-- provide adequate off-street parking with designated entrances and exits.

-- have adequate space; neighborhood shopping centers should range from

3 to 6 acres in size while for community shopping centers from 10 to 30 acres in size.

-- have compatible signs which do not obstruct sight.

Office and institutional areas should:

-- serve as buffers between residential areas and commercial or industrial uses.

-- located in planned office and institutional parks.

-- have adequate off-street parking facilities.

-- have compatible signs which do not obstruct sight.

Industrial areas should:

-- locate on nearly level ground; generally not more than 5%.

-- be well drained and on good load bearing soil.

-- locate where public water, sewer and other utilities are available.

-- locate near railroads, major thoroughfares, airports, navigable waters, and major utility and transmission lines.

-- provide sites large enough for expansion.

-- have property owner commitment at a set price.

Article VII - Conclusion

The Land Use Plan culminates six months' of work by the Southport Planning Board and planning advisor plus the substance of public meetings and surveys where input was given by local residents.

Obstacles to present and future development are clearly identified, means and methods for dealing with development problems and development opportunities are recommended. The protection of the public health, safety and welfare of present and future residents can be assured provided the Board of Aldermen implement the recommendations listed herein as development policy.

Major conclusions of the Land Use Plan are:

--Unless the proper safeguards are installed future development threatens the quality of surface waters and groundwater.

--Present development can be classified as very low density with approximately 120 acres available for development within the city limits.

--Southport requires the professional services of fulltime qualified personnel to insure the efficient and wise management of the community's resources.

--Southport and Brunswick County have coordinated very few services.

--Recreation facilities, fire protection, street surfacing and municipal services are in need of improvement.

--Southport contains many historic sites which have yet to achieve local recognition.

--Critical Areas of Environmental Concern and the fishing and recreational industry provide Southport with a character all its own.

APPENDIX

CITIZEN OPINION SURVEY

FOR THE

CITY OF SOUTHPORT

Southport is preparing a land use plan in order to comply with the requirements of the Coastal Area Management Act of 1974. One of the most important aspects of land use planning is that the plan adequately reflect citizen opinions and attitudes toward the use of the community's land--both public and private. The following survey is intended to give each citizen the opportunity to express his opinion on land use problems and issues. Your cooperation in answering the following questions will be appreciated.

Upon completing the questionnaire, please return to:

Mr. Alvin Kornegay
City Manager
City Hall
Southport, N.C. 28461

1. Are you a permanent resident of Southport? ( ) yes ( ) no

2. If not, how often do you live in Southport?

_____ weekends _____ summer months

3. What is your age? _____

4. Do you live in a: ( ) single-family house
( ) duplex
( ) mobile home
( ) apartment
( ) condominium

5. During the next five years would you like to see the population of Southport --

( ) increase greatly
( ) increase slightly
( ) decrease greatly
( ) decrease slightly
( ) stay the same

6. Which of the following types of development would you like to see more or less of in Southport?

	More	Less
single-family housing	( )	( )
apartments	( )	( )
condominiums	( )	( )
mobile homes	( )	( )
commercial	( )	( )
industrial	( )	( )
public open space	( )	( )
public recreation facilities (playgrounds and parks)	( )	( )

other (specify)_____

_____

7. For what reasons did you choose to live in Southport?

( ) close to work
( ) pleasant surroundings
( ) low taxes
( ) reasonably priced land and house
( ) close to family and friends
( ) single-family beach
other_____

_____

8. In which of the following areas do you feel more public funds should be spent?

	More	Less
water and sewer	( )	( )
garbage collection	( )	( )
fire and police protection	( )	( )
schools	( )	( )
parks and recreational facilities and programs	( )	( )
roadsor public transit	( )	( )
environmental protection	( )	( )
industrial development	( )	( )
town management	( )	( )

other_____

_____

9. What do you like most about Southport?

10. What do you like least about Southport?

11. Do you think development should be permitted in the following areas --

	Never	Seldom	Frequently	Always
lands near inlets	( )	( )	( )	( )
beaches	( )	( )	( )	( )
marshes	( )	( )	( )	( )
dunes	( )	( )	( )	( )
inland waterway	( )	( )	( )	( )

other_____

_____

12. Is there any particular area or type of area within the Town limits or within one mile of the Town limits that you feel is unique or special and should be preserved or protected in its present state or form?

13. Please use the following space to make any additional comments you would like.

Thank you for your help and cooperation. This questionnaire should be returned to the Town Hall by April 30th.

Rare and Endangered Species*

BRUNSWICK COUNTY

Amphibians

Gopher Frog - Rana Aerolata amphibian
Status: Peripheral - Undetermined in North Carolina

Reptiles

American alligator - Alligator Mississippiensis
General Comments: Protected, North Carolina, but development and alteration of habitat endangers species.
Status: Peripheral - Endangered in North Carolina and nationally

Coral Snake - Micurus Fulvius
General Comments: Very Secretive, North Carolina northern limit range
Status: Peripheral - Rare in North Carolina

Eastern Diamond Rattlesnake - Crotalus Adamanteus
General Comments: North Carolina northern limit range
Status: Peripheral - Rare in North Carolina

Vascular Plants

Sagittaria teres

Preferred Habitat: Acid, Sandy ponds and bogs
General Comments: Very Rare
Status: Rare

Ultricularia Olivacea

Preferred Habitat: Ponds
General Comments: Very rare
Status: Rare and endangered

Heterotheca Correllii

Preferred Habitat: Sandy woods
General Comments: Very Rare
Status: Rare

*Source: North Carolina Department of Natural and Economic Resources, Preliminary list of Endangered Plant and Animal Species in North Carolina, June 1973.